OPEN SPACE and OUTDOOR RECREATION STUDY

Summary Report

The REGIONAL MUNICIPALITY of WATERLOO

Department of Planning and Development

Bill Thomson , Commissioner

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We recognize in particular, the contribution of Mr. Don Ross, Ministry of Natural Resources, in conducting the inter-regional phase of his study (Chapter 5).

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INTRODUCTION

CHAPTER ONE

1. BACKGROUND

During the preparation of the Regional Official Policies Plan between 1973 and 1975 many citizens and government officials at three levels voiced a concern over the lack of region-wide outdoor recreational facilities in the Waterloo Region and that the Regional Plan should give more consideration to such facilities to supplement strictly Area Municipal needs. Many of these points of view were submitted at the Regional open houses.

In 1974 a preliminary draft of the main policies to be included in the Regional Official Policies Plan was circulated to the citizens of the Regional Municipality and all involved government agencies for their reaction and input. These policies were the result of a previous circulation to citizens and agencies requesting their ideas, aspirations and participation in the planning process.

On September 26, 1974 Regional Council, as a result of citizen input, approved the following policy:

> "That the Region, with the co-operation of the Area Municipalities, Provincial Agencies and others, undertake a detailed Open Space Study in 1975 of the needs of regional residents for outdoor recreation in order to implement policies on open space in the Regional Official Policies Plan".

Following this, the regional planning staff prepared terms of reference for the study and these were circulated for discussion and comment among Area Planners, Area Municipal Recreation Departments, the Grand River Conservation Authority, the Provincial Ministeries of Natural Resources, Treasury, Economics and Intergovernmental Affairs, Social and Community Services, Industry and Tourism and Recreation and Culture, as well as to the Ministry of State for Urban Affairs at the Federal level. Early in 1975 representatives of these groups met and made the following major comments.

(1) It was felt that the purpose and implications of the study should be clearly stated to remove all local fears of Regional interference.

(2) That the study should be regarded as a planning exercise, advisory to the agencies involved, and its results should not necessarily be binding on any agency.

(3) That there should be a general consensus on the activities to be studied and on the methodology to be used.

(4) That fullest involvement of public and private recreational agencies including the school boards should be obtained.

(5) It was recommended that the following recreation activities be studied -

(a) Swimming in a natural area
(b) Recreational boating
(c) Fishing
(d) Hunting
(e) Downhill skiing
(f) Personal Nature Appreciation
(g) Camping
(h) Golfing
(i) Snowshoeing, Cross-Country Skiing
(j) Recreational Cycling
(k) Recreational Snowmobiling
(l) Hiking

Plus any additions which the Project Team might recommend.

(6) The principle of examining the relationship between the Regional Municipality of Waterloo and adjacent counties and regions was accepted but it was thought that detailed review of methodology should be left to the Project Team, when it was formally constituted.

(7) That Terms of Reference for the study which clarify the above working group comments be prepared as the basis for agencies to participate in the study. Significant assistance was provided in the preparation of this Report in the form of a grant of $4,000 from the Ministry of Treasury, Economics and Intergovernmental Affairs and the loan of one staff member on a 50 percent part-time basis and the underwriting of computer costs by the Ministry of Natural Resources. The latter Ministry also provided Province-wide data plus staff assistance from the Cambridge District Office.

2. TERMS OF REFERENCE

There can be many definitions of regional or region-wide recreation as there is a wide variety of types of recreation areas ranging from tot lots which serve the immediately adjacent residents of a small neighbourhood through to wilderness areas providing a unique recreational experience on a provincial or even national scale. Differences between each type may be made on several bases. For example -

- The size of the area.
- Resource based vs. facility oriented.
- The type of recreational experience provided.
- The extent of area served.

The Kitchener Parks and Recreation Commission, for example, distinguishes six types of recreational open space which they recognize to be of some relevance within the city. These are:

- Neighbourhood Parks
- Community Parks
- City Parks
- Special Facility Areas
- Special Purpose Areas
- Regional Recreation Areas

Use of the term "regional" in reference to recreation areas in the Kitchener situation, as well as throughout this report does not suggest ownership, control or operation of such areas or facilities by Regional Government or any of its agencies.

Simply stated a regional type recreation area is one which offers a recreational service to people drawn from across the region or from more than one municipality and requires planning in that context in order to ensure its best location and use. "Regional" or "Region-wide" recreation refers to types of activities which by the nature of use, the area served, the site requirements are called upon to provide recreational opportunities over and above those available on a city-wide or local municipality basis.

3. PURPOSE

The purpose of the study was to undertake an in-depth investigation of the problems and prospects of reserving the best possible areas within the Regional Municipality to meet the needs of residents across the Region for region-wide recreational opportunities. The recreational activities being studied initially as being region-wide in nature are:

- Swimming in a natural area
- Recreational Boating
- Fishing
- Hunting
- Downhill skiing
- Personal Nature Appreciation
- Camping
- Golfing
- Snowshoeing, Cross-Country Skiing
- Recreational Cycling
- Recreational Snowmobiling
- Hiking

The above activities are seen as being best studied in a region-wide context because they typically attract users from wider than a local municipal area, they often require land parcels or space allocations of a size or of a nature extending over more than one municipality. In addition, future planning of requirements create the need for a co-ordinated approach in designation of use-areas, in negotiations with affected landowners such as utility companies, as well as in approaching senior levels of government who might assist in acquisition of land or in funding of development or maintenance costs.

The study is principally a research and planning exercise to identify what the trends currently are, what possibilities exist in meeting recognized needs. In this respect it may be used as an advisory document and information source by local, regional and provincial agencies, and need not commit any agency to implementing such recommendations as may be derived.

The interest of the Regional Municipality of Waterloo in this study is partly to ensure that future decisions as to the use of lands within the Region are made in the full awareness of the competing demands (residential, employment and recreation) being placed on such lands. Secondly, it will provide an equitable and consistent basis for encouraging and assisting local municipalities, private groups and recreation investment. Finally, it will allow the Regional Municipality to indicate positive uses in areas presently barred from development because of hazard land designation, environmental sensitivity or other negative zoning.

This study is not to suggest a role for the Regional Municipality of Waterloo in operation or management of areas for recreation, nor is it to lead to involvement of regional personnel in operation of such sites or facilities.

4. STUDY ORGANIZATION

The study was undertaken by the Regional Department of Planning and Development under the direction of the Commissioner of Planning and Development in conjunction with the staff of the Ministry of Natural Resources and other Provincial Ministries and private recreational operators.

A Project Team was established within the Department of Planning and Development consisting of the following -

(1) Regional Department of Planning and Development (Chairman and Secretarial)
(1) City of Cambridge, Recreation Department
(1) City of Cambridge, Planning Department
(1) City of Kitchener, Recreation Department
(1) City of Kitchener, Planning Department
(1) City of Waterloo, Planning Department
(1) City of Waterloo, Recreation Department

(3) Representation from the four rural townships (Planning and Recreation)
(1) Grand River Conservation Authority
(2) Ministry of Natural Resources

Resource person - Dr. George Priddle

The Project Team formed the primary working group for the study and was responsible to the Regional Department of Planning and Development for carrying out the study within the approved study design. The Regional Municipality, Area Municipalities, the Ministry of Natural Resources, the Ministry of Treasury, Economics and Intergovernmental Affairs and the Grand River Conservation Authority were invited to contribute staff input as indicated so that the study activities could be carried out, where possible, within the time frame established.

A Technical Advisory Committee composed of representatives of recreational user groups, government agencies, the school board, the Grand River Conservation Authority, private recreational sector and the regional and area municipalities acted as a sounding board for the Project Team. This Committee was chaired by a senior member of the Department of Planning and Development.

5. STUDY DESIGN

The study was divided into five main phases, each to be discussed with the Technical Advisory Committee.

(1) Survey and Inventory
(2) Analysis of Trends
(3) Alternative Recreational Strategies
(4) A Region-wide Open Space and Outdoor Recreation System
(5) Operational Guidelines

6. MAIN REPORT

This Report has been published in two editions, a Main Report and this shorter edition entitled the Summary Report. This edition contains two key chapters of the Main Report -

2. Open Space Inventory and Resource Analysis
3. Summary Conclusions and Recommendations

In order not to confuse those readers who have both editions of this Report, Table and Map numbers remain the same in both reports. Chapter 3 of this edition includes a summary of research and analysis chapters to be found in the Main Report. To assist those who wish to pursue further research in this subject copies of the Main Report have been deposited in the following places:

Head Quarters Library, Regional Municipality of Waterloo

Main Library, City of Cambridge

Main Library, City of Kitchener

Main Library, City of Waterloo

University of Waterloo and Wilfrid Laurier University Libraries,

National Library of Canada

Ministry of Treasury, Economics and Intergovernmental Affairs

Ministry of Tourism and Industry

The Seven Municipalities within the Regional Municipality of Waterloo

6. Recreational Use - Patterns and Needs

Concepts in Recreational Participation

Various methods have been applied in estimating the amount of recreational opportunities which should be provided to residents of communities. These range from normative standards which recommend various size recreational areas by type and function in relation to size of the population, and attempts to identify current and potential levels of participation in various recreational activities and projecting them into the future. The issue of how elements contributing to current recreational levels may be identified and their impacts isolated is one of the most contentious to resolve. This arises because factors such as age, sex, income and education individually and together give rise to various levels of recreational consumption. Consequently, projection of current recreation often involves projection of current recreational consumer profiles.

A second major issue is how to estimate future recreational requirements for that type of consumer who is not presently active. The importance of "latent" or hidden demand is at best hypothetical and while in a large scale framework attempts should be made to estimate its significance, such exercises are subject to severe limitations.

Where low or non-participation in recreation is due to such factors as income, leisure time, etc. one cannot presume that more of these factors will call forth more recreational needs. In fact, various forms of substitutions may occur such as continuing education versus recreation or one type of recreation in place of another. Another perverse situation may occur due to overcrowding of facilities following an overall rise in incomes, leading to a face-off in patronage and maybe an eventual over-all decrease in participation.

Consequently, for essentially short-run analysis of a localized nature, primary emphasis should be placed on understanding prevailing attitudes, patterns, trends and constraints among participants and non-participants alike. This direction was followed in the intra-regional phase of the demand study.

Because recreational users frequently cross administrative and even political boundaries in search of recreational activities, strategic recreational planning must recognize these cross-flows which may be inter-community, inter-municipal, inter-regional, inter-provincial or even inter-national in impact. Attempts to estimate needs purely in a Regional Municipality of Waterloo context was thus neither realistic nor desirable. Within the inter-regional phase of this study the potential availability of recreational opportunity to Waterloo residents within a supply area defined by a two-hour travel time zone three hours for camping surrounding the Region was estimated, taking into account the following factors.

1) Adjustments for movement into and out of the study area.
2) Competition from adjacent population centres.
3) Estimates for latent demand.
4) Assumptions on various desirable levels of service.

TABLE 1.1

PERCENTAGE OF RESPONDENTS PARTICIPATING AT LEAST ONCE IN THE PAST 12 MONTHS IN SELECTED ACTIVITIES (ORS & RRS COMPARED)

ONTARIO RECREATIONAL STUDY

Activity	Provincial Average	Former Waterloo County	S-W Ontario		Waterloo Regional Recreation Study
			Urban	Rural	
1. Swimming	65.3	69.0	68.1	57.0	65.0
2. Motorboating	33.0	29.9	27.0	28.0	31.0
3. Canoeing	16.3	13.4	14.0	11.3	22.7
4. Sailing	6.2	4.7	6.1	2.1	12.5
5. Fishing	37.3	37.7	34.0	34.4	42.5
6. Picnicing	59.5	65.3	61.1	58.5	-
7. Big Game Hunting	4.4	2.4	1.1	3.2	4.5
8. Small Game Hunting	9.2	6.8	6.0	12.0	7.9
9. Snowshoeing	4.5	6.2	2.0	2.0	6.2
10. Cross-Country Skiing	3.1	4.0	2.4	1.0	10.2
11. Rec. Driving	64.5	69.9	73.3	71.1	52.5
12. Bicycling	30.9	33.8	33.3	28.2	34.2
13. Trailbiking	4.5	4.2	4.8	6.7	8.2
14. Snowmobiling	18.3	17.7	9.9	20.6	16.4
15. Hiking	23.4	29.6	23.7	21.0	16.0
16. Nature Appreciation					
- animals	13.8	17.7	13.3	14.3	-
- flora	11.1	16.8	10.8	9.0	42.9
- rocks	9.0	11.1	9.3	8.7	-
17. Camping	28.6	36.2	29.7	29.0	40.8
18. Golfing	13.9	17.4	19.4	12.8	26.7
19. Other Boating	-	-	-	-	8.9
20. Downhill Skiing	8.1	10.5	7.0	5.0	16.1
21. Waterfowl Hunting	-	-	-	-	3.7
Sample Size	10233	314	930	1055	520

Recreational Patterns of Regional Residents

Data on recreational patterns of residents in Waterloo Region were derived from two main sources. During 1973-1974, the Province of Ontario conducted a survey of recreational and leisure time activity throughout the Province. Within the Regional Municipality of Waterloo a sample of some 314 respondents provided extensive information on types of recreation done, frequency of participation, when done, where done, methods of transportation used, accommodation, etc. Though the sample was small for drawing conclusions of a local nature, it provided a consistent base for analysis during the inter-regional phase of the study.

To overcome the deficiencies of the small sample and in an attempt to isolate recreation participation patterns of a local nature, a special sample survey of Regional residents twelve years of age and over, was conducted in 1975. These two sources individually and in combination provide some relatively informative bases for identifying issues of primary concern for strategic recreational planning.

The Regional and Provincial Surveys Compared

In Table 1.1 results from both surveys are presented in response to the question whether or not the respondent had participated in the particular activity at least once in the preceding twelve months. Taking into account the differences in sample sizes, the probable variation in respondent profiles and the two year time lapse between both surveys the results are relatively consistent. Only for the following activities is there a difference in excess of ± 5 percentage points, between the Waterloo Regional Recreation Study, and the Former Waterloo County component of the Ontario Recreational Survey. These are, fishing, cross-country skiing, recreational driving, hiking, golfing and downhill skiing. (Note, that the results for swimming are not comparable since the Provincial figure includes all swimming, while the Regional figure is only for swimming in a natural area). It was therefore decided to use the results of the Regional Survey for the more detailed investigation into Region-wide trends and problems. This further allowed cross references between participation and user attitudes to local facilities and areas.

Participation Patterns

Of the twenty (20) recreational activities studied, it was found that the proportion of persons participating in each ranged from a high of 65% for persons who had swam in a natural area, to a low of 4 % of respondents who had done waterfowl hunting. These comparisons set out in Figure 1.1 make no distinction as to where the activity was done so that part of this recreation activity did occur at sites outside the Regional Municipality. It should be noted that the next two most popular activities are "ubiquitous" in nature. That is, they do not require major public investment to create suitable sites and could occur almost anywhere. Following these are large space users and resource dependent activities requiring management of site or

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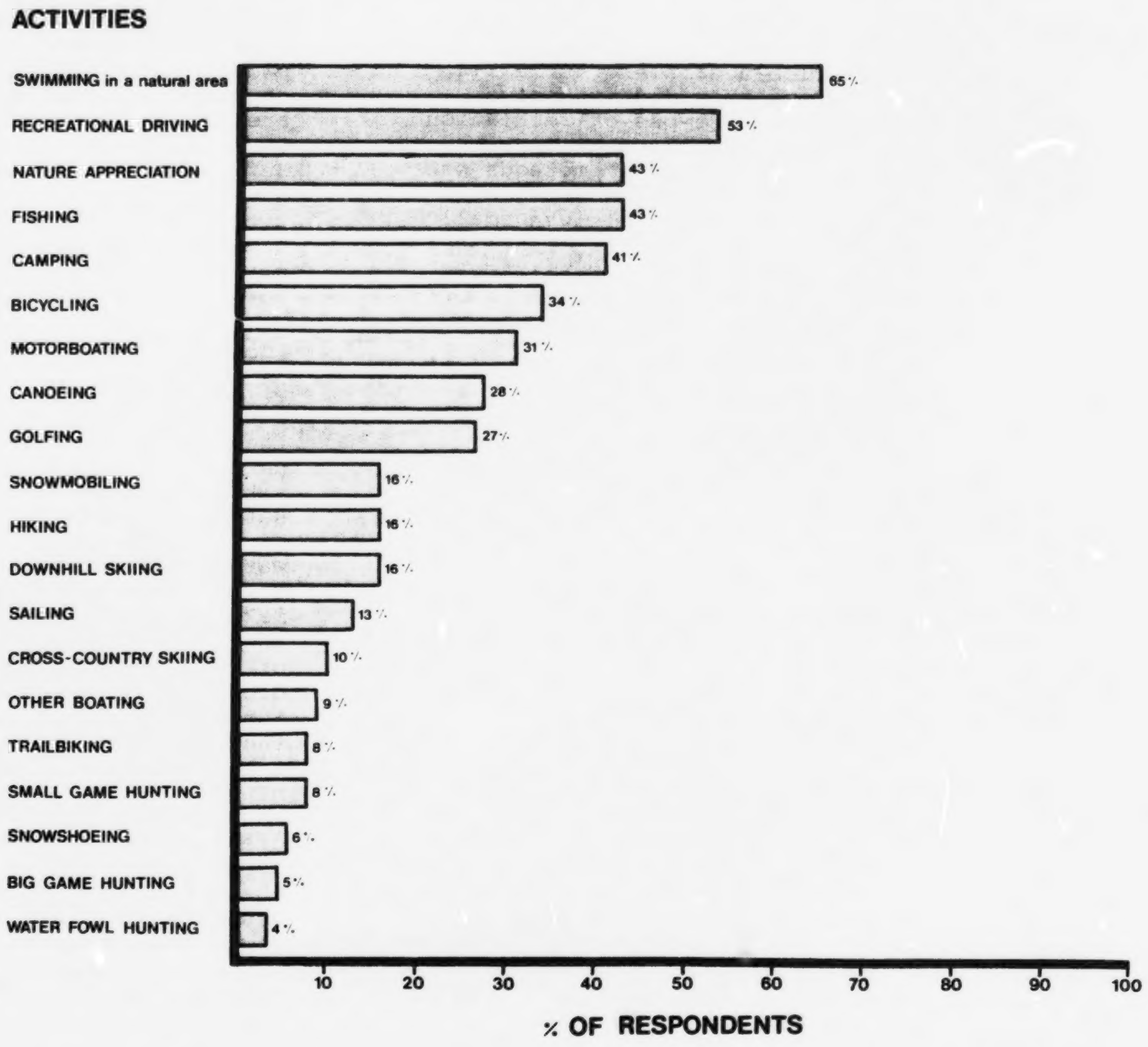
Tourism and Outdoor Recreation Planning Study Ontario Recreation Survey. Progress Reports, Queen's Park Toronto.

FIGURE 1.1

PERCENTAGE OF
TOTAL RESPONDENTS PARTICIPATING
BY ACTIVITY



resources. It is interesting to note that the typical trails activities appear in the lower 50% of popular activities, and that hunting occupies three out of the four least popular spots.

In terms of average time spent doing each of the activities indicated, it will be seen that bicycling, recreational driving and nature appreciation excepted (for which there are no major constraints), camping, golfing and swimming consumed the next largest recreational time in that order (Figure 1.2). Despite major seasonality and weather constraints, downhill skiing and snowmobiling emerge high in terms of average user days. This means that though these two activities may not draw a large percentage of residents, those who ski or snowmobile are avid enthusiasts.

Should one attempt to compile a "popularity index" for these twenty selected activities by combining percent participation with average time spent doing each activity, one arrives at the following summary.

A. Ten Most Popular Activities (in order)

1. Recreational Driving
2. Bicycling
3. Nature Appreciation
4. Swimming (in a natural area)
5. Camping
6. Motorboating
7. Fishing
8. Golfing
9. Sailing
10. Canoeing

B. Ten Least Popular Activities (in order)

1. Snowshoeing
2. Big Game Hunting
3. Waterfowl Hunting
4. Other Boating
5. Cross Country Skiing
6. Trailbiking
7. Small Game Hunting
8. Hiking
9. Snowmobiling
10. Downhill Skiing

However one should interpret this simple grouping carefully. For example, many activities are seasonal or heavily dependent on suitable natural conditions (e.g.) cross-country skiing or institutional constraints (e.g.) hunting. Consequently, activities are not weighted equally. Also, opportunities are not equally available and may require special time allotments (e.g.) big game hunting or by definition consume more time (e.g.) overnight camping. The "popularity index" however, provides a rough measure of those opportunities which if created would provide the greatest community satisfaction, or it may indicate areas where emphasis should be placed to the widest community benefit.

Participation within the Region Versus Outside

Based on the percent participation by the sample in each activity, the average number of days spent in each activity and the average time split between occasions within the Region and occasions outside the Region, it was possible to estimate and project total participation and participation within the Region by activity for 1975, 1976, 1981, 1991 (Figures 1.3, 1.4).

Participation is expressed in terms of user days, (i.e.) the number of separate days or occasions on which the user participated.

FIGURE 1.2

AVERAGE NUMBER OF DAYS PER YEAR BY ACTIVITY

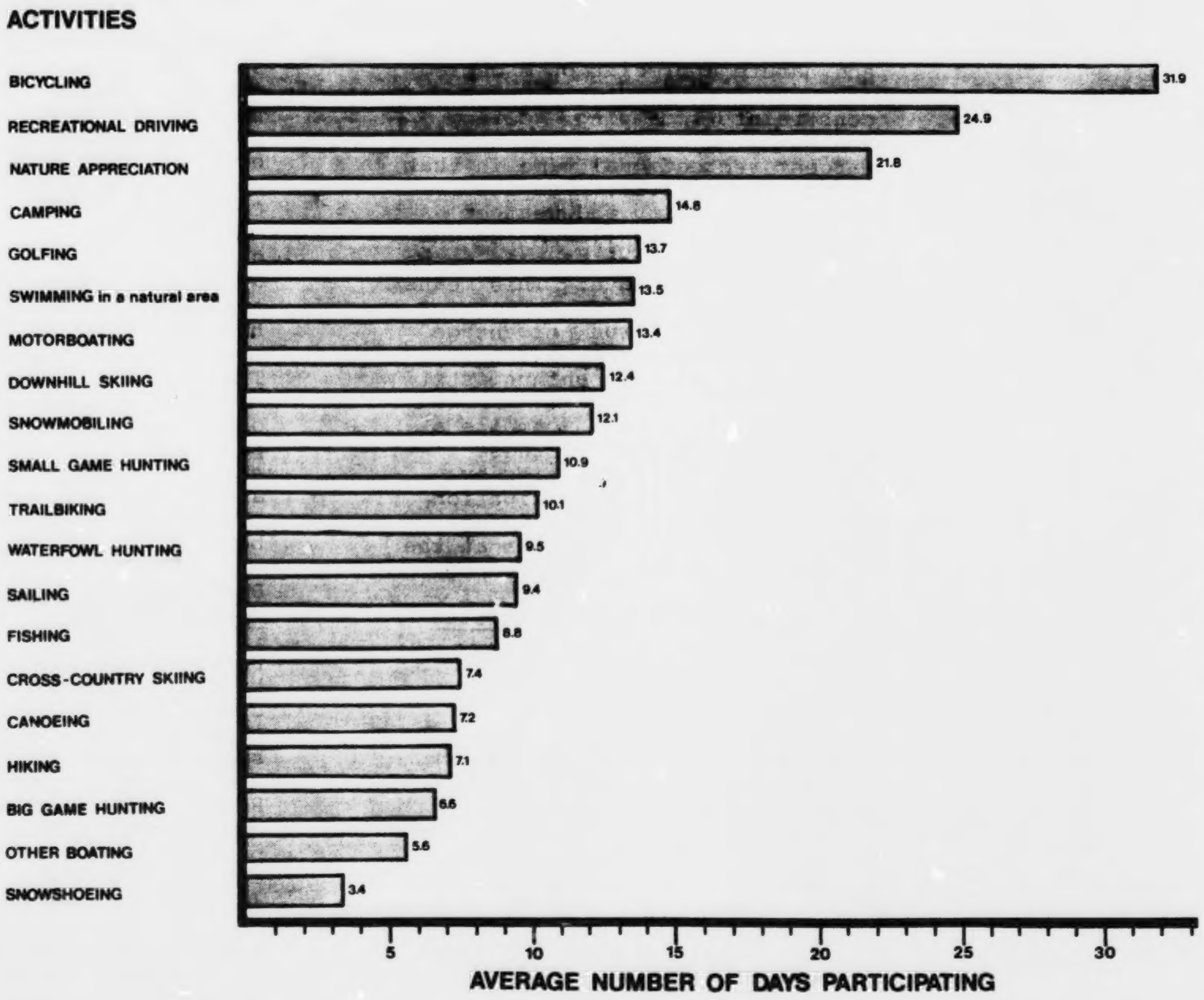
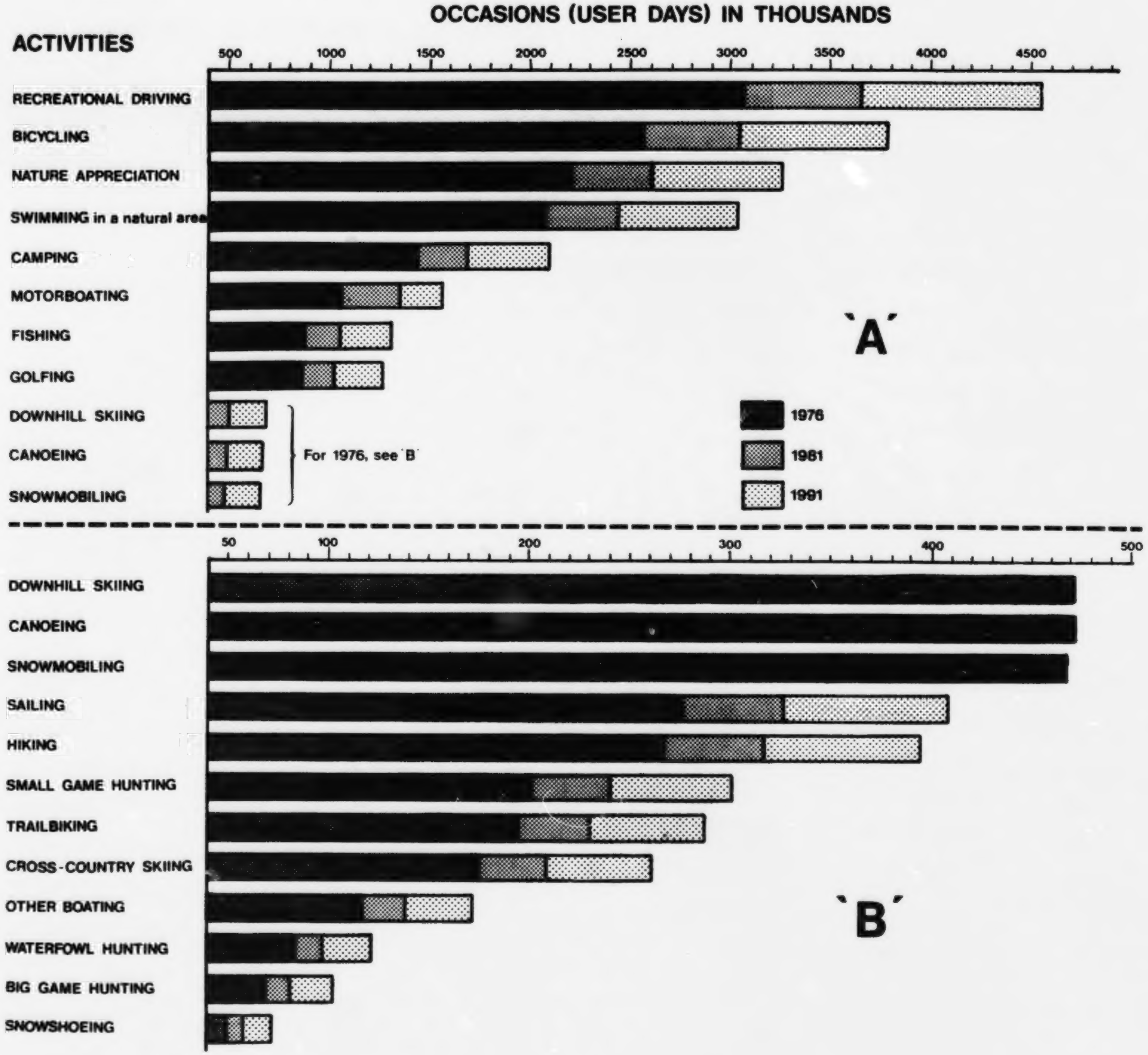


FIGURE 1.3

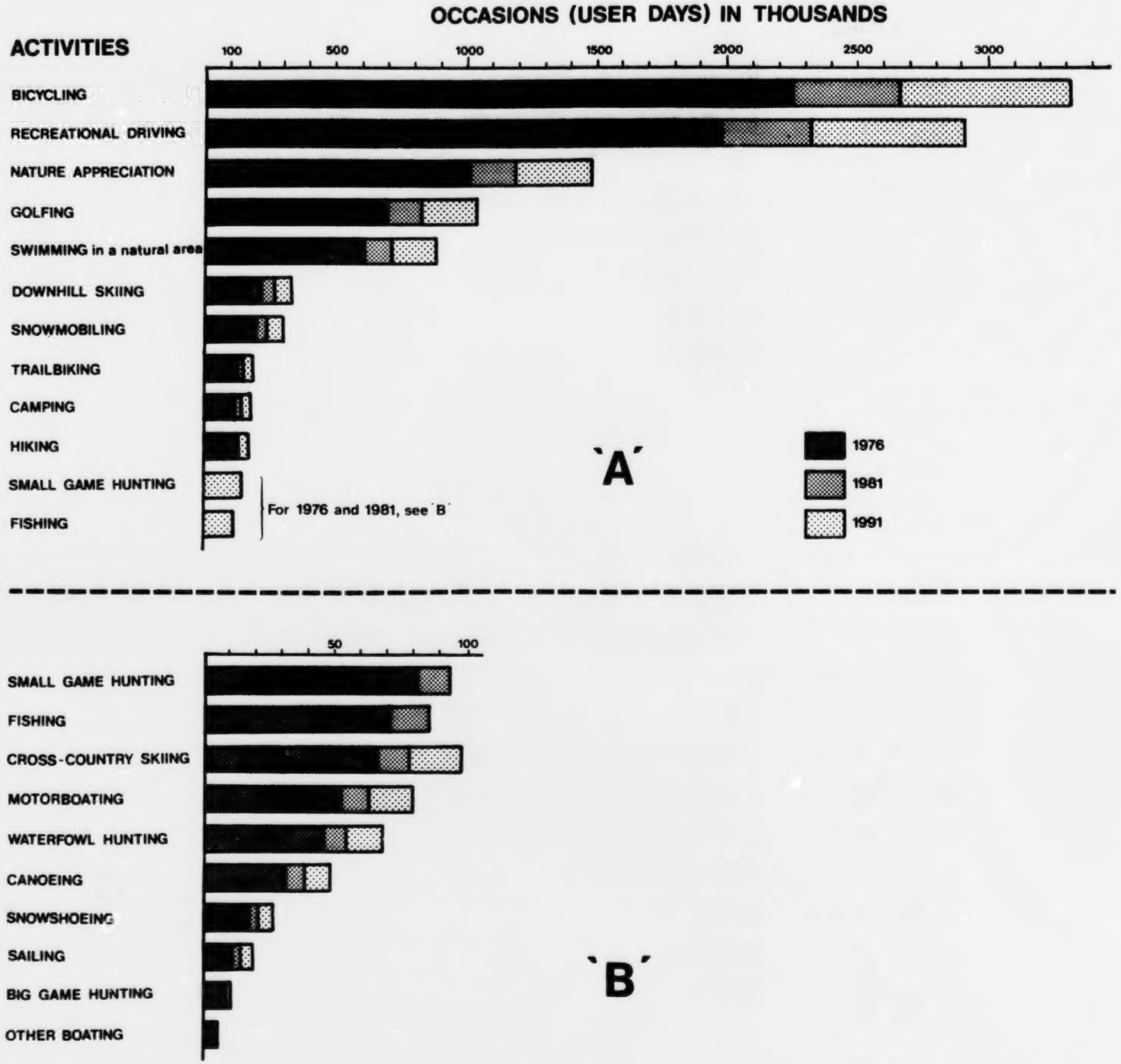
ESTIMATED TOTAL PARTICIPATION



NOTE DIFFERENCE IN SCALES

FIGURE 1.4

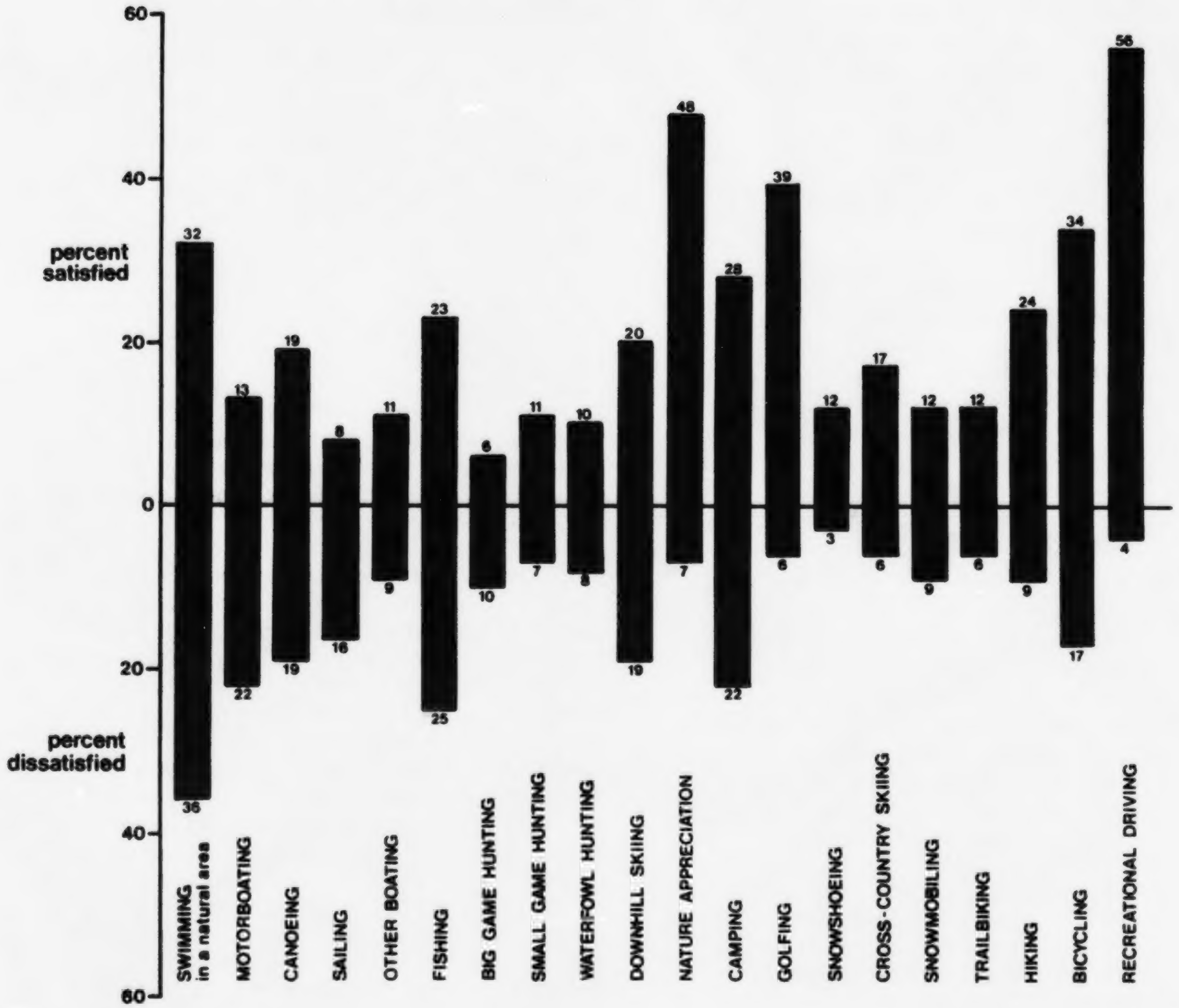
ESTIMATED PARTICIPATION WITHIN the REGIONAL MUNICIPALITY of WATERLOO



NOTE DIFFERENCE IN SCALES

FIGURE 1.5

RESPONDENT OPINIONS OF EXISTING RECREATION SUPPLY



Participation is not an adequate indicator of effective demand (i.e.) the number of potential users ready, willing and able to participate, but who are restrained because of inadequate supply.

In order to test the incidence of this hidden or latent demand, non-participants or low-level participants were asked to indicate the reason for their patterns. In nineteen (19) out of the twenty (20) cases, "lack of interest" emerged as the number one reason. This was followed by "lack of time", and thereafter, by "miscellaneous other reasons", "no skill", "costs", physical disability or age", and "dangerous nature of the activity" in that order.

On the supply side, respondents were asked to rate the quality of recreational opportunity available to them on the following basis:

Very Satisfied
Satisfied
Neutral
Dissatisfied
Very Dissatisfied

Figure 1.5 groups the percent of respondents who were "satisfied" and "very satisfied" in contrast with those who were "dissatisfied" and "very dissatisfied". It will be seen that among those responding there are clear cases of high level of dissatisfaction with existing facilities. For example, "swimming" 37%, "motor boating" 22%, "canoeing" 19%, fishing 25%, downhill skiing 19%, The implication therefore must be that improvements or creation of new amenities might engender increased levels of participation.

Among those expressing dissatisfaction, the reasons for dissatisfaction were listed and ranked from among.

	Rating	Overall Ranking
1) High Fees	4.25	6
2) Not Enough Areas	1.25	1
3) Too Far (to travel)	3.35	3
4) Poor Quality	2.65	2
5) Too Crowded	3.75	5
6) Other	3.35	3

In seventeen of the twenty activities, "not enough areas" was given as the foremost reason for dissatisfaction. This was followed by "poor quality" and an almost equal rating of "too far to travel", "too crowded" and "other reasons". "Poor quality" was a special problem in the case of water-based recreation, and "high fees" was mentioned with regards to golfing and downhill skiing. "Overcrowding" emerged as a significant problem in the case of swimming, downhill skiing, camping and golfing.

Figure 1.3 shows in summary the total estimated participation in user-days expected from Regional residents 12 years of age and over in 1976, 1981, 1991. This chart does not differentiate the place where it is expected that recreation will be conducted, nor does it assume that the required amount of opportunities will be available in the amounts required. Figure 1.4 identifies that portion of participation shown in Figure 1.3 which is expected to be done within the Regional Municipality of Waterloo during each of the years in question. Once again, it does not assume that the required amounts of recreational opportunities will be available within the Region to permit this level of participation.

However, on the basis of projected population levels and Regional participation patterns base level forecasts of opportunities required within the Regional Municipality, and outside without regard to the impact of competition from surrounding areas, can be derived.

Inter-Regional Recreation Demand

The purpose of this segment of the study was to estimate participation by residents of Waterloo Region in each activity and to compare this participation to the supply of recreational opportunities available to the Regional population. "Available opportunity" was defined to mean:

i) Activities open to the general public on a daily basis,

ii) Activities within a two-hour (three-hour for camping) one-way drive of the Regional population centroid.

Using participation and recreational supply inventory data from the Ontario Recreation Survey and the Ontario Recreation Supply Inventory respectively, available supply was allocated to Waterloo Region and surrounding population centres subject to two constraints.

i) Distance or travel time,
ii) Where small population centres are adjacent to large areas of supply, supply per capita allocated to such centres is artificially limited to a reasonable level.

The principal outputs of this analysis are supply participation ratios for each population centre and indications of the amount of supply from each supply zone allocated to each population centre.

If the supply/participation ratio (supply divided by participation) equals 1.0, then a state of balance exists for that population centre between the supply allocated to it and the supply emanating from it.

If the supply/participation ratio is less than 1.0, it could indicate that participation (in occasions) has outstripped supply (in opportunities). If the supply participation ratio is greater than 1.0, this could indicate surplus supply though on peak days or holidays there may, in fact, be no such surplus.

In Table 1.2 the derived supply/participation ratios for eight selected activities and for six major population centres have been presented. It will be found that for all activities being studied the Regional Municipality of Waterloo received a better than Provincial average supply/participation ratio. In spite of this, some activities show major deficiencies in available supplies now and in the future. This includes downhill skiing, hiking on designated trails, and golfing.

As part of the analysis estimates of visitor inflows and outflows into and out of Southern Ontario were made and applied as modifiers. In addition, the incidence of cross-flows between Waterloo Region and surrounding south-western Ontario Municipalities was also estimated and applied.

The model was run using various data packages which assumed alternative assumptions on:

i) Future population levels,
ii) Constant participation rates in the future (required base level),
iii) Assumptions of a moderately low increase in participation,

iv) Assumptions of a moderately high increase in participation,

v) Alternative levels of service

   a) Mean level of service: Achieve a supply/participation ratio equal to the Southern Ontario average for all activities,

   b) Increased level of service: Achieve a supply/participation ratio equal to the Southern Ontario average for those activities currently lower and maintain the present ratio for those activities currently above the average.

The summary results are illustrated in Figures 1.6 and 1.7. These results are for the Regional Municipality of Waterloo and for each activity, the effective allocated supply based on 1974 availability data is indicated. Against this, alternative participation requirements have been projected. For each of the years 1976, 1981, and 1991 expected future participation levels are shown if:

i) There is no change in participation rates (required base level),

ii) There is a moderately low increase in participation,

iii) There is a moderately high increase in participation.

These are shown in Figure 1.6 for a mean level of service situation, that is, the Regional Municipality of Waterloo is merely maintaining the Ontario average for its residents. In Figure 1.7, however, the increased level of service option is presented in which the Region is attempting to obtain opportunities to bring it up to the Provincial average for those opportunities where it is weak, and to maintain excess supplies where it is strong. This latter symbolises the concept Regional inter-dependence.

In Table 1.3(a), the eight activities which have been examined in detail are presented to show the sources of supply by present share of supply which have been allocated to Regional residents by the Model. For example, it is assumed that 79% of Regional residents' requirements for swimming opportunities will be met along Lake Huron shoreline. In Table 1.3(b) the percent of opportunities within the Regional Municipality allocated by the Model to outside consumers is also shown.

TABLE 1.2

Supply/Participation Ratios for Selected Population Centres, Activities and Years

Assumptions
1. No new supply is added
2. TEIGA Population figures
3. No change in the occasions per capita

Population Centre	Swimming in a natural environment				Motor Boating, Sailing				Picnicking				Downhill Skiing			
	1974	1976	1981	1991	1974	1976	1981	1991	1974	1976	1981	1991	1974	1976	1981	1991
Kitchener-Waterloo	4.62	4.39	3.88	3.15	.51	.46	.43	.36	3.41	3.24	2.90	2.44	.54	.51	.45	.37
Woodstock	3.74	3.62	3.38	3.04	1.05	.99	.95	.86	3.57	3.42	3.14	2.70	.61	.59	.55	.50
Mitchell	9.37	9.00	8.29	7.11	1.71	1.65	1.61	1.54	3.57	3.43	3.15	2.72	.24	.29	.28	.26
Guelph	4.01	3.81	3.40	2.80	.79	.70	.68	.57	3.59	3.39	3.14	2.68	1.47	1.41	1.21	1.03
Brantford	3.76	3.63	3.35	2.95	.88	.82	.79	.70	3.56	3.44	3.17	2.72	.29	.28	.26	.22
Hamilton	2.71	2.63	2.45	2.20	.52	.47	.47	.42	2.62	2.52	2.34	2.12	.39	.38	.35	.32
S. Ontario Average	2.84	2.73	2.51	2.15	1.54	1.48	1.31	1.17	2.37	2.28	2.10	1.80	.62	.60	.54	.47

Population Centre	Snowmobiling				Hiking on designated trails				Golfing				Camping			
	1974	1976	1981	1991	1974	1976	1981	1991	1974	1976	1981	1991	1974	1976	1981	1991
Kitchener-Waterloo	15.7	15.0	13.4	11.0	.81	.78	.69	.57	.74	.70	.63	.53	3.21	3.07	2.75	2.31
Woodstock	13.9	13.4	12.5	11.1	.72	.70	.65	.59	.86	.83	.78	.71	3.75	3.59	3.35	2.80
Mitchell	23.1	22.5	21.3	19.8	.92	.89	.81	.69	1.12	1.10	1.07	1.04	3.69	3.59	3.34	2.80
Guelph	28.5	27,1	24,4	20,3	.86	.83	.77	.66	1.08	1.03	.93	.78	3.70	3.61	3.34	2.80
Brantford	8.26	7.95	7.30	6.34	.48	.47	.43	.37	.97	.94	.87	.76	3.40	3.17	3.08	2.81
Hamilton	5.11	4.93	4.56	4.04	.29	.28	.26	.23	.62	.60	.56	.50	2.23	2.16	2.02	1.82
S. Ontario Average	9.04	8.69	8.00	6.86	.41	.40	.36	.31	.63	.61	.56	.48	2.33	2.25	2.06	1.77

TABLE 1.3

PART A: MAIN SOURCES OF SUPPLY ALLOCATED TO REGIONAL MUNICIPALITY OF WATERLOO

ACTIVITY	SOURCE OF ALLOCATED SUPPLY	PER CENT
Swimming in a natural area	R. M. of Waterloo	11
	Lake Huron Shore	79
	Lake Erie Shore	2
	Total	92
Boating	R. M. of Waterloo	6
	Lake Huron Shore	18
	Lake Erie Shore	14
	Lake Ontario Shore	12
	Lake Simcoe	13
	Wellington County	19
	Total	82
Picnicking	R. M. of Waterloo	41
	Wellington County	12
	R. M. of Halton	7
	Flamborough Township	11
	Brant, Oxford, Perth	10
	Huron and Bruce	5
	Total	86
Downhill skiing	R. M. of Waterloo	51
	Markdale, Kimberley Area	14
	Collingwood	8
	Orangeville Area	12
	Guelph, Milton & Caledon	10
	Total	95
Snowmobiling	R. M. of Waterloo	14
	Wellington County	69
	Dufferin County	12
	Total	95
Hiking on designated trails	R. M. of Waterloo	41
	(Grand and Speed Valley Trail)	(47)
	Bruce Trail	10
	Perth County	18
	Lower Bruce County	16
	Total	85
Golfing	R. M. of Waterloo	58
	Wellington County	8
	R. M. of Hamilton-Wentworth	6
	R. M. of Halton	6
	Huron and Bruce Counties	6
	Total	84
Camping	R. M. of Waterloo	12
	(Grand River Cons. Auth.)	(21)
	Lambton, Huron, Bruce Counties	27
	Grey, Simcoe and Muskoka	13
	R. M. of York and east Ont.	12
	Middlesex, Oxford, Brant & R. M. of Hamilton Wentworth	15
	Total	79

PART B: PER CENT OF SUPPLY IN R.M. OF WATERLOO ALLOCATED TO RESIDENTS OUTSIDE THE REGION

ACTIVITY	PER CENT
Swimming in a natural area	40
Boating	30
Picnicking	30
Downhill skiing	10
Snowmobiling	50
Hiking on designated trails	40
Golfing	40
Camping	70

FIGURE 1.6

ESTIMATES OF REQUIRED DAY-USE SUPPLY MEAN LEVEL OF SERVICE

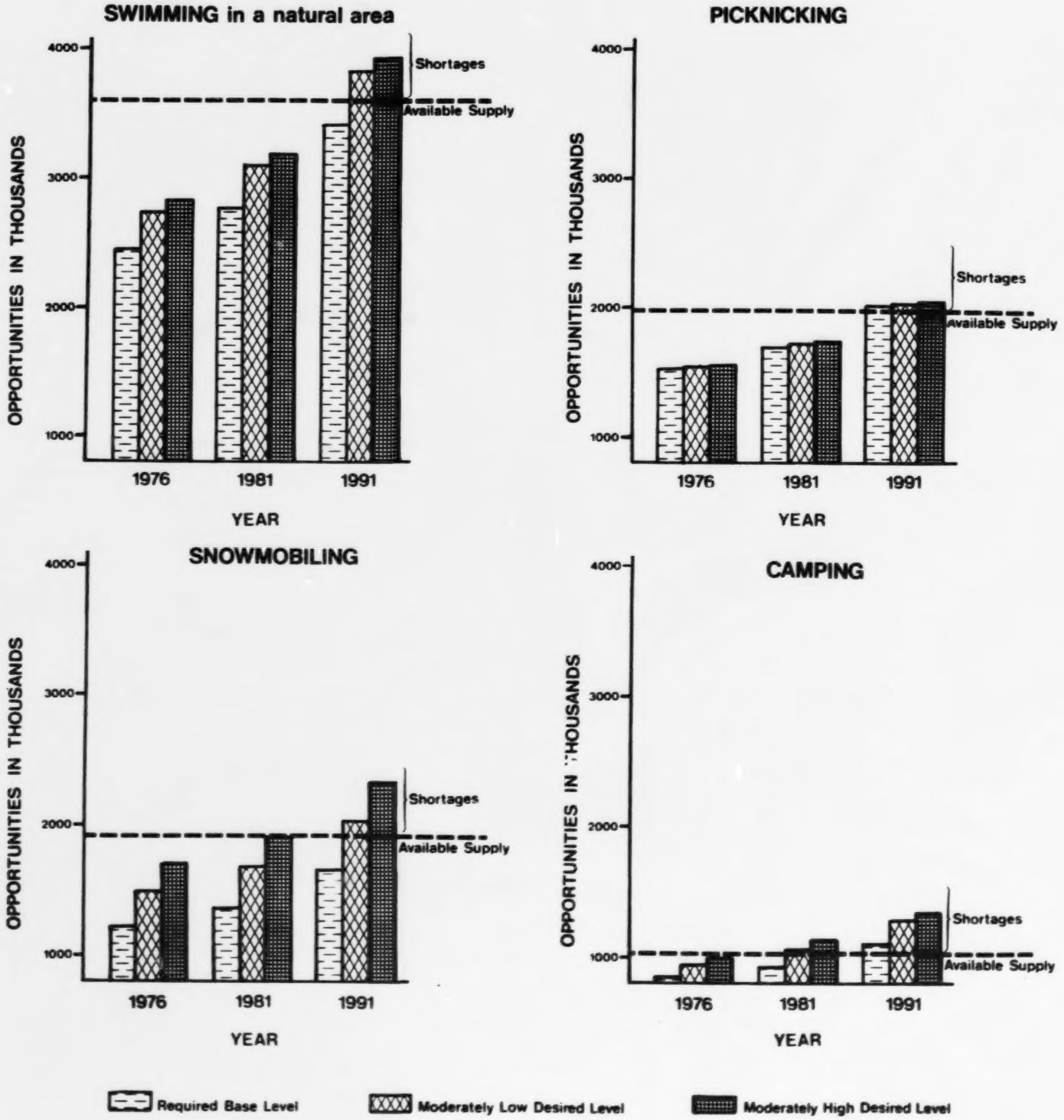


FIGURE 1.6 CONT'D.

ESTIMATES OF REQUIRED DAY-USE SUPPLY MEAN LEVEL OF SERVICE

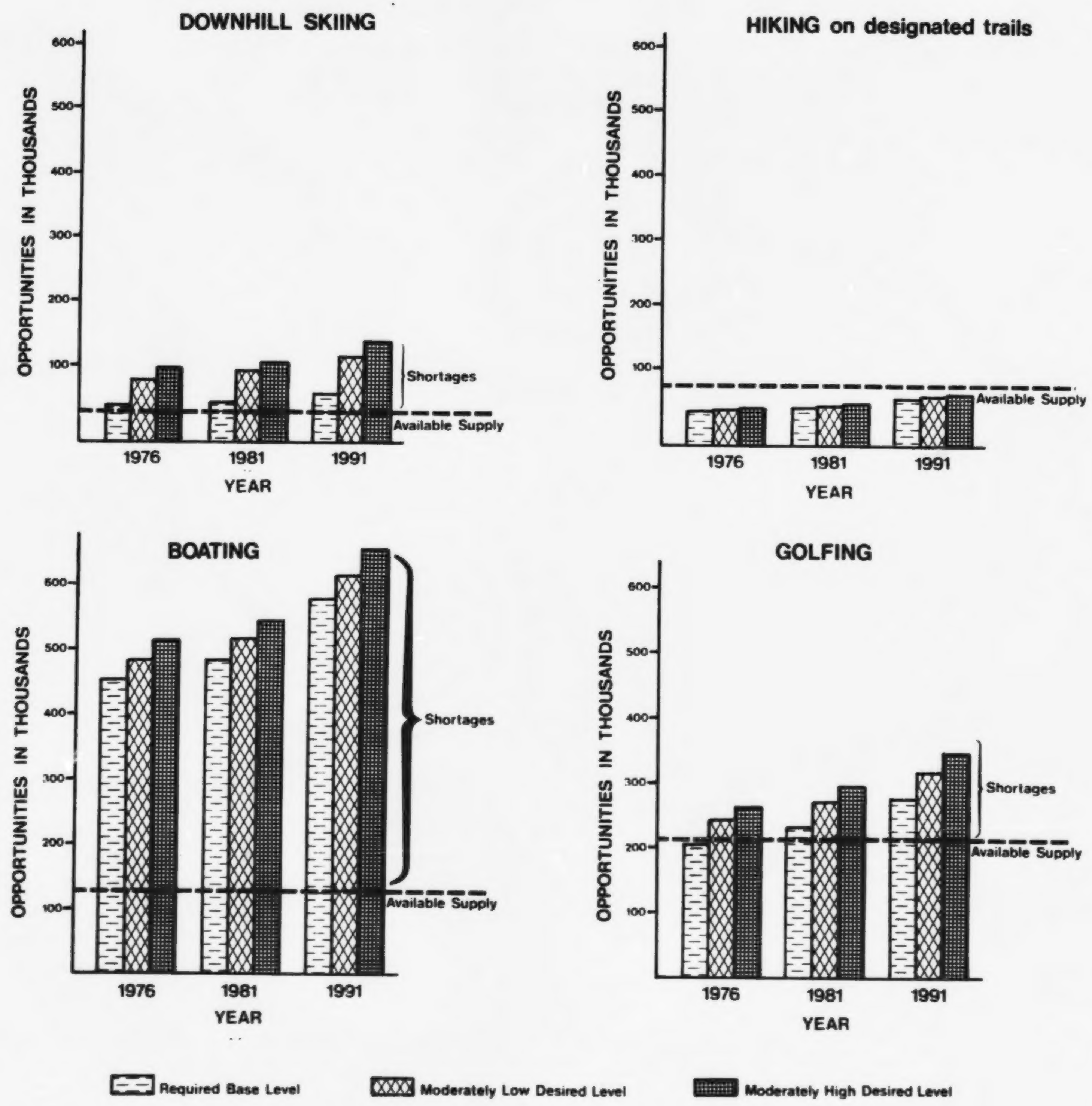


FIGURE 1.7

ESTIMATES OF REQUIRED DAY-USE SUPPLY INCREASED LEVEL OF SERVICE

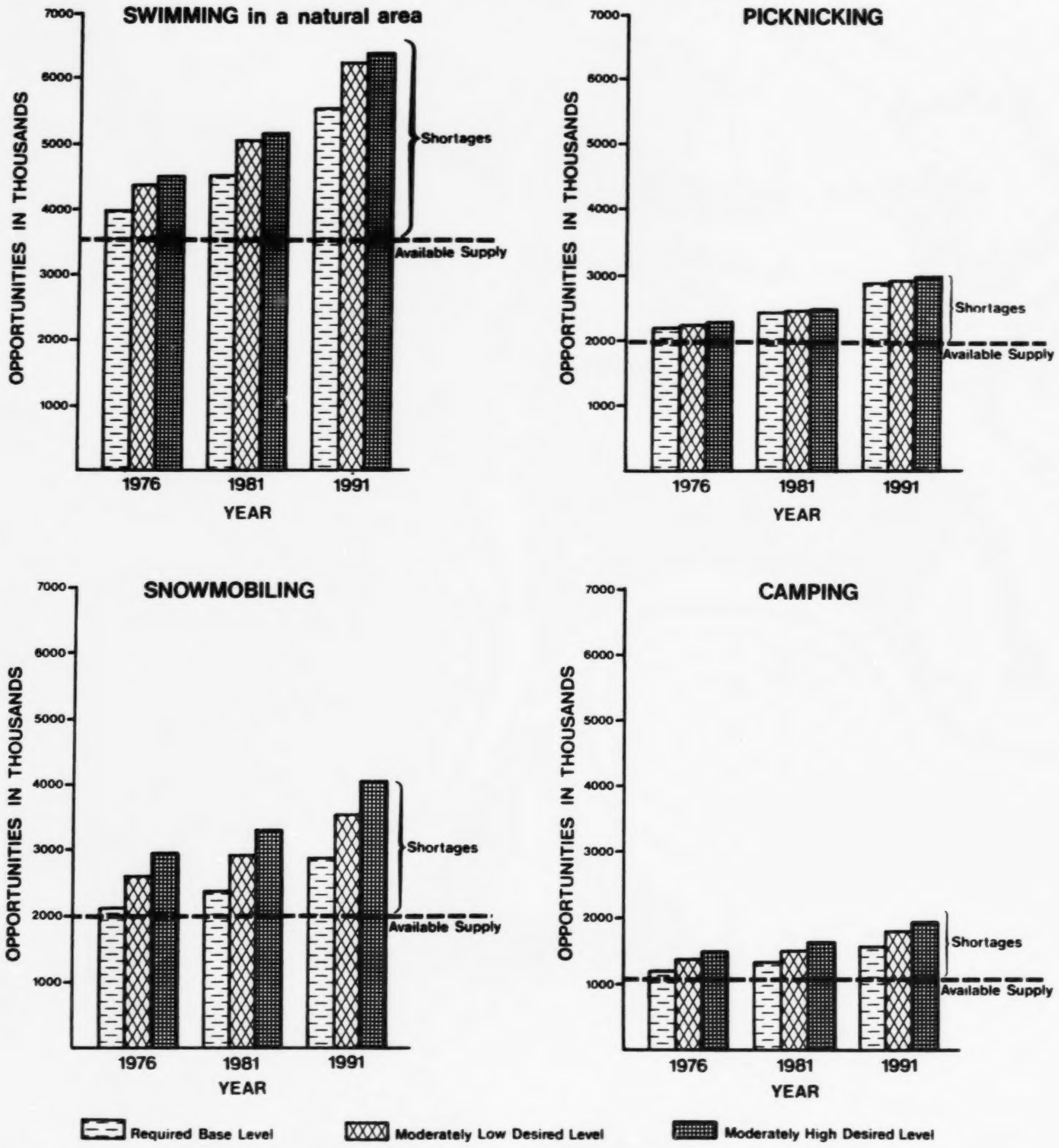
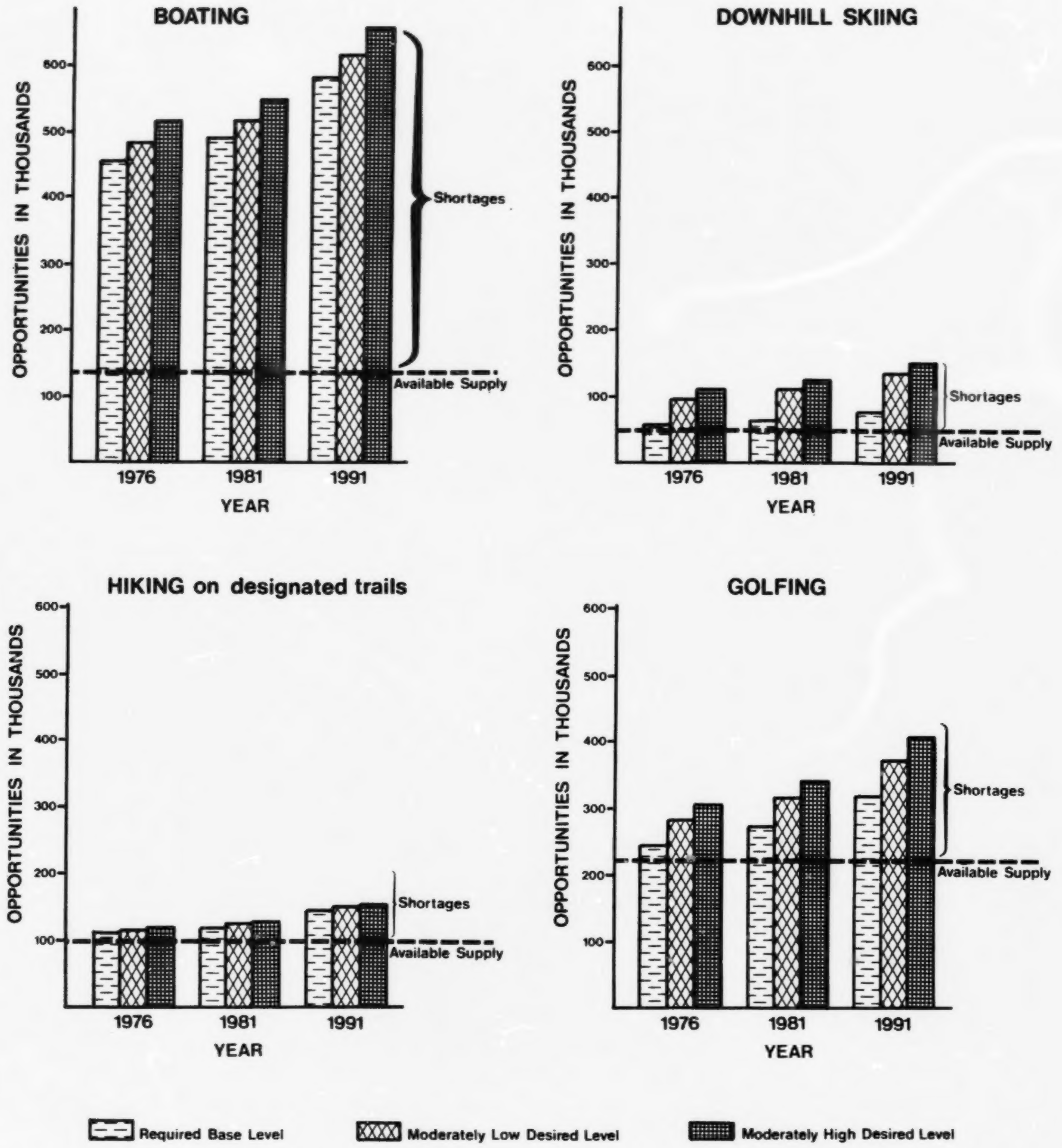


FIGURE 1.7 CONT'D

ESTIMATES OF REQUIRED DAY-USE SUPPLY
INCREASED LEVEL OF SERVICE



Open Space Inventory and Resource Analysis

CHAPTER TWO

1. LOCATION AND SETTING

The Regional Municipality of Waterloo covers an area of about 519 square miles, and is located in the centre of the South-Western Ontario Peninsula. (Map 3.1) It is strategically situated with reference to the major Southern Ontario population centres and has relatively easy access to the major cities in New York State and the American Mid-West. The Regional Municipality sits astride the major Ontario east-west transportation corridor, the MacDonald Cartier Freeway. The Regional Municipality is within one hour's drive from Metropolitan Toronto to the east, and the Hamilton-Oakville-Burlington conurbation at the western end of Lake Ontario to the south. By way of the Queen Elizabeth Way and Highway #8 the Regional Municipality is easily accessible to the residents of the Niagara Peninsula and the road system through the Region provides a favorite corridor for vacationers from the Niagara Falls and Fort Erie points-of-entry to the recreation areas of the Muskokas, Georgian Bay, Lake Simcoe and Lake Huron.

Following the introduction of Regional Government on January 1, 1973, the Municipalities within the former County of Waterloo were re-organized into seven local area municipalities comprising the present Regional Municipality of Waterloo. These are the three Cities of Cambridge, Kitchener and Waterloo together with the primarily rural Townships of North Dumfries, Wellesley, Wilmot and Woolwich (Map 3.2). The three main cities are located along a general north-south axis through the centre of the Regional Municipality and historically have grown outwards into the surrounding agricultural areas. Today, within the corporation limits of each urban municipality, there exists substantial tracts of yet undeveloped land capable of continuing as an agricultural resource until such time as they are needed for growth. At the same time, through sensitive planning at the fringe, the rate of urban expansion can be slowed down, and much of this area be diverted to urban support open space uses such as recreational, agriculture, extensive recreation, gravel extraction sites, etc.

The Regional Municipality combines the often conflicting characteristics of a strong manufacturing community within a vibrant agricultural and natural resource area. Located on the western edge of the Toronto-Centred Region, the Regional Municipality lies within the Metropolitan Toronto sphere of influence. This is reflected in the increasing incidence of commuter trips for purposes of work, shopping and recreation and results in various land use and land management pressures resulting from these trends.

In 1971 an estimated 10.6% of the land area within the Regional Municipality could be considered developed or directly serving urban needs. Of the remaining 89.4% of the land area, some 73.2% could be classed as primarily agricultural in nature. This included lands actively farmed, lands recently farmed but then lying fallow, and pasture lands. The remaining 16.2% constituted woodland and forested areas, swamps, marshes and waterbodies as well as recreation areas.

2. THE NATURAL ENVIRONMENT

The nature, distribution and impact of the physical characteristics of the Region provide the context within which the open space potential of the Regional Municipality should be evaluated, and future recreation needs can be met. Considerable data exists on the geology, topography, drainage, vegetation, soils, water quality, landscape sensitivity and ecology of the area. These have been assembled as a data summary and analysis individually and in combination to determine their open space and outdoor recreation potential.

2.1 Geology

The geological history and emergence of present landforms within the Regional Municipality of Waterloo has been well documented by Karrow[1]. Four distinct formations running in broad belts of varying widths and with a generally north-south orientation may be identified within the Region. (Map 3.3). These formations range in age from the Geulph Dolomite formation in the eastern section of the Region to the youngest Bois Blanc formation in the west. This latter is a combination of Dolomite, Sandstone and Limestone In between lie the brown Dolomite, gray shale and salts of the Salina formation and the Bass Island formation of light colored Dolomite further west.

The action and interaction of glaciers within the Region contributed to a sequential process of sedimentation and deposition of glacial till in a variegated pattern throughout the area. The composition of the till reveals the nature of the parent material across which the glaciers travelled. The thickness and alignment of the till reveal the rate and direction of glacial movement as well as the effect of obstructions to the glacial drift. These contributed to the formation of inter-lobate moraine and end moraines of poorly mixed material.

The resulting features of these processes are an inter-woven pattern of moraines, drumlins, eskers and kames consisting variously of gravelly, sandy, silty and clayey material. Interspersed throughout are wide stream valleys and scattered "kettle" lakes originally created by the settling and melting of ice blocks, but now maintained by fluctuating water table levels. Today, familiar outdoor recreational and educational areas such as Paradise Lake, Spongy Lake, Hofstetter Lake, Sunfish Lake, Bannister and Wrigley's Lake remain as examples of this feature.

2.2 Soils

The soils of Waterloo Region are predominantly an amalgam of silt, clay and sandy tills spread in broad sheets across the area. Sandy tills occur frequently throughout the eastern sections of the Region, particularly in Woolwich Township, Cambridge and North Dumfries.

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[1] P.R. Karrow, "Bedrock and Pleistocene Geology" in E.W. Presant and R.E. Wickland, Soils of Waterloo County, Report No. 44, Ontario Soils Survey. Canada Department of Agriculture (1971)

Clayey tills are to be found mostly in the western half of Wellesley and Wilmot Townships. Between these two major areas there is a central mixed zone of silty-clayey material or silty-sandy material common to the Waterloo Moraines covering most of the Cities of Kitchener and Waterloo, and the eastern half of Wellesley and Wilmot Township and also common to the scattered moraines of the area.

The distribution of soils by types tends to be very complex in terms of location, material and slopes. A total of fifty-two different soil series have been identified within the area, clearly suggesting the complexity of determining generalized approaches to land utilization.

2.3 Topography and Drainage

These two variables are the major determinants of site suitability for recreation. The Regional Municipality displays some variability in elevation, landforms and drainage. However this is a variation of gradual changes and not of drastic contrasts. The range in elevation within the Region is approximately 600 feet. The highest elevations occur in three separate districts, namely, at the northern tip of Woolwich Township atop the Elmira Moraine, east of Crosshill atop the Crosshill Spur of the Waterloo Moraine, and at the Baden Sandhills. The lowest spot is at the southern-most valley floor of the Grand River within the Region as it carves its way to Lake Erie. (Map 3.4). In between these extremes there lie the flat open fields of the Woolwich Plains, the rolling tree-capped ridges of the Waterloo Sandhills and the major river systems. Scattered throughout the area are various eskers, moraines and drumlins of varying length, width and height. (Map 3.4).

The Grand River and its tributaries, the Conestoga, the Speed, the Nith and the Canagagigue Rivers, together with their feeder streams form the basic drainage system within the area. Except for the Grand River which follows a broad glacial spillway, most of the other rivers are confined within a relatively narrow channel carved out of the clay plains through which they flow. (Map 3.5). Consequently, although the drainage system adds some diversity to the landscape, except for the Grand River and to a lesser extent the Nith River, their impact is primarily local.

2.4 Vegetation and Cover

The Regional Municipality has been extensively cultivated in various agricultural crops. An estimated 12.9% of the Regional land area is currently in forest and woodland. Except for a few instances of linear wooded corridors, these wooded areas are primarily disjointed farm woodlots, water retention or soil conservation areas. (Map 3.6)
In recent years there has been a slowly growing trend towards multiple-use managed woodlands. The Region has undergone considerable change in the quality of forest cover from a predominantly hardwood production area to reforestation of common softwoods.

Woodlots and forested areas are being threatened by rural estate-type residential developments, and as the margin of extensive agriculture moves outwards some wooded areas have also been lost to agricultural expansion. Nevertheless, the remaining forest areas are an important resource for recreation, wildlife and conservation, nature appreciation and scenic purposes.

The current practice of farming in the Region emphasizes field crop cultivation with grain crops such as corn, barley, oats and mixed grain showing the greatest popularity. Associated with these trends in grain production is the production of livestock particularly cattle and pigs. The two-fold effects of this trend are heavy fertilizer use in cultivation and increasing incidence of effluent run-off from intensive livestock operations. These have an important impact on the water quality in the watershed.

2.5 Ecological Patterns

Some understanding of the predominant ecological patterns within the Region provides a necessary basis for making judgments as to how these natural resources might be utilized. In an integrative study of the Waterloo Region, Coleman defines a pattern of eco-regions or "fairly compact areas housing a common characteristic or combination of features".[1] Using criteria of geomorphology on a large scale, refined by soil types and land use at smaller scales, five major eco-regions were identified. (Map 3.7). These are:

(1) The Waterloo Kame Moraines consisting of:

- a) North Sandhills
- b) Central Sandhills
- c) South Sandhills
- d) Baden Sandhills
- e) Crosshill Spur

(2) Galt and Paris Moraines comprising:

- a) Galt Moraine
- b) Paris Moraine
- c) Inter-Moraine Valley

(3) Guelph Drumlin Field

- a) Eramosa Drumlin Field
- b) Conestoga Till Plain
- c) Woolwich Till Plain

(4) Stratford Till Plain

- a) Linwood Till Plain
- b) Wilmot Till Plain
- c) Upper Nith Outwash Cannel
- d) Macton Moraine

(5) Grand River Outwash Channel

- a) Upper Grand Outwash Cannel
- b) Conestoga Outwash Cannel
- c) Nith Outwash Channel
- d) Speed Outwash Channel
- e) Confluence Outwash Plain

Each of these eco-regions possesses unique characteristics important to an understanding of its potential as an open space resource.

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[1] D.J. Coleman, An Ecological Input into Regional Planning, School of Urban and Regional Planning University of Waterloo (1975)

(1) Waterloo Moraines

This area often referred to as the Waterloo Sandhills is a sub-region of rolling hills generally underlain by rich sand and gravel deposits, with a clayey till over burden. In parts where steep slopes occur, the lands are unsuitable for field crop cultivation, though pasturage, forestation and some orchard crops are possible. The ridges and peaks of this area are conducive to linear recreation including scenic look-outs. Because the steeper shopes are forested they provide excellent habitats and linked ranges for wildlife. Numerous small streams, lakes and marshes are scattered throughout the area. The cold water streams in particular have good potential for sport fishing.

(2) Galt-Paris Moraines

This is a rough and stony landscape with an occasional section of relatively fertile soil. Consequently, the sand and gravel potential is very high. Numerous streams and little lakes may also be found interspersed throughout the area.

(3) The Guelph Drumlin Field

Throughout, this area is a continuous flat plain underlain by fertile till with a capping of silt. There are also some scattered pockets of wet soils. The soils here are relatively well-drained and are suitable for most uses, and with particularly high capability for agriculture.

(4) Stratford Till Plain

Soils in this Region are generally of a heavy texture and have poor internal drainage. However, they are capable of high agricultural productivity under medium level of management. The topography is flat to gently rolling and is dissected by the Nith River and several local creeks.

(5) Grand River Outwash Channel

These river valleys of the Grand River, the Nith, the Speed and the Conestoga Rivers are characterised by an area of variable quality sand and gravel. These watercourses and their adjacent floodplains have significant recreational potential for both water-based and land-based year-round recreation. These outwash channels also have high potential for gravel extraction.

3. LAND SUITABILITY INVENTORY

The results of mapping major eco-regions as shown on Map 3.7, reveal broad patterns suitable for identifying significant Regional landscape units. In order to further detail smaller relatively homogeneous units, soil capability inventories for various alternative land uses were assembled based primarily on the Canada Land Inventory. Each capability map, could then be related to each major eco-region or sub-region and a soil suitability index could be assigned accordingly.

Each soil map indicates on a raging scale of I to VII, the capability of the soil type to support various levels of productivity for each type of open space use being considered. Class I soils are the best or most productive soils, and each subsequent class is increasingly worse requiring increasing levels of manage,ent, capital or other technical inputs. Used in combination, the derived composite map reveals areas of various level capability for different types uses, and so highlights generalized zones of competition, compatibility and conflict.

3.1 Soil Capability for Agriculture

Map No. 3.8 has reduced the multi-digit mapping technique adopted by the Canada Land Inventory to a single digit index using a formulation developed by Hoffman and Cressman[1]. Class I and II soils predominate on the Conestoga, Woolwich and Linwood Till Plains, with a crescent shaped area of Class II soils curing through North Dumfries Township.

Class III soils are concentrated on the Waterloo Sandhills west of Kitchener and Waterloo and around the Macton and Elmira Moraines near Wellesley and Elmira respectively.

Class IV agricultural capability soils are common to the Macton Moraine, the Galt Morraine district and along the eastern sections of the Waterloo Sandhills where increasingly adverse conditions of topography and fertility combine to lower soil productivity.

Class V soils are generally confined to the river valleys and floodplains of the major water-courses.

3.2 Soil Capability for Commercial Forests

The classification of soils for forestry also follows a class rating of I through VII with Class I having "no important limitations to the growth of commercial forests" and Class VII "having several limitations". Tree species indicators which are indigenous to the area are used to assess capability and are shown, together with the proportion of the area relating to each class.

The resultatant map (Map 3.9) for the Region bases capability primarily on the following species.

Hard Maple	(hm)
Soft Maple	(so m)
Red Pine	(P)
White Spruce	(ws)

Once again the underlying influence of the major Eco-regions emerges as significant determinants of forestry capability, with the result that the best agricultural lands are also the best lands for commercial forests.

(1) The Conestoga Till Plain possesses excellent capability for white spruce and soft maple in the area north of Maryhill ($1^6 2^3 4^1$) and very good potential for red pine and hard maple to the south ($1^7 2^2 2^1$).

(2) The Linwood Till Plain area shows up as highly suitable for white spruce and soft maple in the north-western section of the Region ($2^6 1^4$).

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[1] Dr. D.W. Hoffman and Dave Cressman. Personal Communication.

(3) The Macton-Hawkesville Moraines possess a high capability for red pine and hard maple (2 1 3) despite moisture and rooting problems.

(4) Wilmot Till Plain extending along the western section of the Township offers high capability for red pine, hard maple and to a lesser extent white spruce and soft maple. (1 2 3).

(5) The Waterloo Moraine encompassing the North, Central and South Sandhills including the Crosshill Spur is generally an era of lower capability due to problems of moisture deficiency in the sandy areas, wetness in the kettle lakes and depressions (e.g.) around the Paradise Lake area, and moisture problems in the remaining areas to the east and south. In spite of this, this area possesses relatively high capability for red pine and soft maple, generally Classes 2 and 3. There are high potential pockets interspersed within this pattern, for example around New Dundee (1 2 for red pine, white spruce, hard maple and soft maple); along the high ridges of the Wilmot-Waterloo-Kitchener boundary (1 2 for red pine and hard maple).

(6) Cambridge north of Highway 401 is indicated as a sub-Region of high capability for red pine and hard maple (Class 2) except for those sections of excessive wetness where Class 4 suitability for white spruce and soft maple may be found. East of Cambridge, the Paris Moraine (2 3 1) as expected suffers from a moisture deficiency limitation though suitable for red pine and hard maple. South of the Galt Moraine because of a high water table in the limestone area there are larger sections affected by wetness.

Most of the Township of North Dumfries except for the kettle lakes locations where wetness problems exist have a Class 5 capability for soft maple and good potential for red pine and hard maple.

3.3 Land Capability for Wildlife

The Canada Land Inventory capability rating of land for wildlife distinguishes two main categories of land needs, namely, for ungulates (such as deer), and waterfowl. The biological requirements for the maintenance of viable populations of deer are specifically related to availability of food supply, protective forest-cover and range areas. In this respect then classification of land for ungulates will reflect land capabilities for agriculture and forestry but on a more generalized basis because of possibilities of migration of ungulate communities.

In the case of waterfowl, topography and terrain conditions creating water-bodies and soil conditions and giving rise to support vegetation together with factors of depth and flow of water are more important.

The following are definitions of respective classes.

(1) Land Capability for Wildlife (Ungulates)

Class I	No significant limitations. A wide variety of food plants and other habitat elements is available.
Class II	Very slight limitations. Slight climatic or other limitations.
Class III	These lands have slight limitations due to factors affecting the quantity and quality of habitat, or climatic factor limiting mobility or availability of food and cover.
Class IV	Moderate limitations present similar to Class III But to a greater extent.
Class V	Moderately severe limitations reulting from a combination of two or more of the following: climate, moisture, fertility, depth to bedrock, topography, flooding, exposure, adverse soil conditions.
Class VI	Severe limitations, severe constraints as in Class V exist.
Class VII	No ungulate production possible.

(2) Land Capability for Wildlife Production (Waterfowl)

Class I	No significant limitations.
Class II	Very slight limitations.
Class III	Slight limitations due to climate, quality and quantity of habitat.
Class IV	Moderate limitations, degree of constraints greater than in Class III. Water areas are predominantly temporary ponds, open waters with poorly developed marsh edges or both.
Class V	Moderately severe limitations caused by one or more of the following: climate, moisture, permeability, fertility, topography, salinity, flooding and poor interspersion of water areas.
Class VI	Severe limitations including aridity, salinity, flat topography, stee-sided lakes, porous soils, soils containing few soilable minerals.
Class VII	Very severe limitations almost precluding waterfowl production.

The potential of the Region for wildlife as indicated by these two classifications reveal a generally high capability for ungulates with Classes I, II and

III predominating. In contrast, isolated pockets of III, IV, V classes of land for wildlife (waterfowl) dot the Region these are centred mainly on the river system and small kettle lakes and marshes. The major constraints to higher capability for waterfowl are adverse topography prohibiting development of wetlands and free-flowing water inhabitating the development of marsh habitats along the water edges. (Map 3.11)

3.4 Land Capability for Recreation

The Canada Land Inventory classification for recreation differentiates land into seven classes "on the basis (of the) quantity of outdoor recreation which may be generated or sustained per unit of land area per annum". The classification is national in application and ranges from Class I areas to Class VII. The following descriptions of each Class should be noted.

Class I	Very high capability for outdoor recreation activities (of an intensive nature such as bathing, skiing).
Class II	High capability for outdoor recreation activities of an intensive nature.
Class III	Moderately high capability for outdoor recreation activities of an intensive or moderately intensive activities.
Class IV	Moderate capability for outdoor recreation activities usually of a dispersed nature.
Class V	Moderately low capability for outdoor recreation activities of a dispersed nature.
Class VI	Low capability for outdoor recreation activities of a dispersed nature.
Class VII	Very low capability for outdoor recreation activities.

Because of the national application of the classification scheme, sites and land units which may be con sidered significant on a local or Regional level do not necessarily emerge as highly rated areas. However, it is useful to consider the designated recreational capability land unit in reference to each other. (Map 3.12)

(1) No areas of recreational capability Classes I and II have been inventoried for the Region.

(2) One area of Class III centred on Sunfish Lake, has been identified. Recreational activities suggested for this area are, boat-tripping, family and/or recreational lodging, swimming.

(3) About fourteen locations are classed as Class IV recreational capability,

 (a) Northern and Eastern shores of Paradise Lake (boat tripping, bathing, recreational lodges).

(b) Southern bank of Conestogo River between Regional Road 17 and the river. (Boat-tripping, scenic views, hiking, nature study and outdoor appreciation, angling).

(c) West Montrose Covered Bridge and adjacent banks. (Boat-tripping, historic site, structure of recreational interest).

(d) Chicopee Ski Hills and adjacent lands. (Boat-tripping, viewing area, downhill skiing, hiking and nature study).

(e) Hidden Valley. (Water-tripping, scenic views).

(f) Homer Watson Park (extending to the river), and adjacent lands suitable for water-tripping, vegetation possessing recreational value, scenic views.

(g) Doon Pioneer Village - historic site, exhibits of recreation interest.

(h) Doon Pollution Control Plant - Water boat-tripping, viewing area.

(i) Pinnacle Hill. Vantage point for viewing, down-hill skiing potential, hiking and nature study.

(j) Pioneer Tower - lands fronting on the river including this section of the river are suitable for boating, water-tripping, historic site.

(k) South of Cambridge, west of Township Road 15 is considered suitable for water boat-tripping, hiking and nature study, viewing of upland wildlife and wetland wildlife.

(l) Section between Township Road 15 and Grand River south of the Bridge for water boat-tripping, scenic views, hiking and nature study, angling or viewing of sport fish.

(m) South of Wrigley's Lake, west of Highway 24A. Suggested activities are, boat-tripping, viewing of vegetation having recreation value, viewing of upland wildlife, hiking and nature study.

(n) West bank of Alder Lake, suitable for boat-tripping, recreational lodges, viewing of wildlife.

The remainder of the Regional Municipality meet criteria of Class V capability or lower.

3.5 Land Capability for Gravel Resources

Based on the work of Presant and Wicklund[1], Coleman[2] has prepared land capability ratings for granular material. Using a five-class hierarchy this distribution has been mapped for commercial deposits of sand and gravel as follows:

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[1] W.E. Presant and R.E. Wicklunk, OP. cit.

[2] D.J. Coleman, OP. cit.

Class I	Excellent Potential
Class II	Good Potential
Class III	Some Potential
Class IV	Limited Potential
Class V	No Potential

It should be emphasized that Coleman's ratings are based strictly on an assessment of "the top three feet of materials, and in this respect provide incomplete data on true potential. More detailed inventories conducted by McClellan[3] have additionally been used to obtain a more comprehensive survey. These various sources have been combined to produce a generalized mapping of potential areas of large concentrations of sand and gravel. (Map 3.13)

In general extensive sand deposits may be found in large concentrations in all major eco-Regions with the possible exception of the Linwood Till Plain and Wilmot Till Plain. Commercial gravel deposits exist in parts of the Conestoga Till Plain, Woolwich Till Plain, upon substantial sections of the Confluence Outwash Plain in the western sections of North Dumfries and along the river valleys of the Grand River and its major tributaries.

3.6 Water Suitability for Fishing and Swimming

Using secondary data compiled by the Grand River Conservation Authority on water quality in the Grand River Basin, and results of fish surveys conducted by the Ministry of Natural Resources, a preliminary attempt has been made to index the suitability of streams within the Regional Municipality of Waterloo[4]. This assessment is preliminary in that it does not survey all the eligible streams in the area, and for those streams surveyed, data for a more extended survey period would have been preferred. With these limitations in mind, the rating of stream and rivers indicated in Map 3.14 is presented as a first brush evaluation only. More detailed and extended inventories will be necessary to establish the suitability and viability of these water systems for swimming and fishing.

4. POLICY DEFINED OPEN SPACE AREAS

Within the Regional Municipality of Waterloo are several open space areas the use of which is restricted because of existing or potential future policies relating to sensitivity of the natural environment or the uniqueness of the area. These areas are a significant resource in assuming future open space planing. Firstly, they are important for achieving and maintaining ecological stability. Secondly, they provide much needed habitats for wildlife species. Thirdly, they provide opportunities for a limited range of recreational activity including outdoor education. Fourthly, they are welcome amenity resources providing scenic and visual benefits.

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[3] A.G. McClellan and C. Bryant. The Aggregate Resources of Waterloo - South Wellington Counties. University of Waterloo. (1974)

[4] Appendix H

4.1 Grand River Conservation Authority Regulated Areas

Regulations of the Authority for Fill, Construction and Alternation to Waterways[1] are applied throughout the Regional Municipality on lands qualifying under the following categories.

(a) Selected Floodways
(b) Floodplain Lands
(c) Regulated Lands

In effect development is prevented from encroaching within regulated areas or because of removal or addition of fill, from otherwise affecting the hydrology of the designated areas. (Map 3.15)

Permissible uses are specified in the regulations. In general crop cultivation, open type public and private recreation areas are allowed.

Potentially, regulated lands could become a valuable non-intensive open space and outdoor recreation resource.

4.2 Hazard Lands

The Ministry of Natural Resources, the Grand River Conservation Authority and the Regional Municipality of Waterloo are co-operating in developing criteria for identifying hazard lands within the Regional Municipality and mapping of such areas. Currently, as a result of an independent study by the Ministry of Natural Resources, mapping of lands susceptible to flooding, areas having unstable slopes, and locations of organic soils have been mapped. These areas have been classified into High Hazard and Low Hazard Areas indicating relative size of affected area and severity in the degree of hazard. Map 3.16 indicates areas of high hazard only and is included as a first step in identifying areas having limitations for development and potentially a continuing open space resource.

4.3 Flood Plains and Environmentally Sensitive Policy Areas

Following adoption of the Regional Official Policies Plan designated areas within the Regional Municipality which because of unique environmental or ecological conditions have been recommended for preservation as an open space resource. (Map 3.17) Criteria for inclusion of sites within this designation are listed below:

(a) The occurrence of significant, rare or endangered indigenous species within the designated area;

(b) The identification of plant and/or animal assocaitions and/or landforms which are unusual or of high quality regionally, provincially or nationally;

(c) The classification of the area as one which is large and undisturbed, thereby potentially affording a sheltered habitat for species which are intolerant of human disturbance;

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[1] Grand River Conservation Authority, 1971.

(d) The classification of the area as one which is unique with limited representation in the Region or a small remnant of once larger habitats which have virtually disappeared;

(e) The classification of the area as one containing an unusual diversity of plant and animal communities due to a variety of geomorphological features, soils, water and micro-climatic effects;

(f) The identification of the area as one which provides a linking system of undisturbed forest for the movement of wildlife over a considerable distance;

(g) The performance of the area in serving a vital ecological function, such as maintaining the hydrological balance over a widespread area acting as a natural water storage or recharge area; or

(h) The recognition of the area as one demonstrating any of the above qualities but suffering a reduction of its uniqueness or rareness by the intrusion of human activities.

4.4 Properties Registered under the Woodland Improvement Act

The Woodland Improvement Act provides for the Province of Ontario to enter into an agreement with property owners for the establishment, maintenance and management of woodlots in the Province. Within Waterloo Region several such agreements have been concluded. (Map 3.18) It is intended that properties registered under this agreement will be managed by the Province under a multi-use concept including forestry, recreation and wildlife. Though access to and use of the property by the public is subject to the permission of the landowner, a major open space opportunity could be encouraged through the use of such lands and expansion of the program in this Region.

4.5 Scenic Roads

During 1975, the Waterloo Regional Heritage Foundation commissioned a study to evaluate and rate the scenic merits of the roads within the Regional Municipality. This study, undertaken by Dr. George Priddle prepared a rating methodology and applied it to the four rural townships. The report which points to the need to preserve those roadways and the views from the road which have a high rating provides the basis for Map 3.19, Scenic Roads. While it is not properly a Policy Map at this stage, in recognizing the findings of this report, a major consideration in future rural land use and resource planning has been suggested.

5. UTILITY RIGHTS-OF-WAY

An attractive proposal which has received considerable support among Regional residents is the possibility of using existing utility corridors and rights-of-way for compatible recreational activities. This generally includes hydro transmission easements, gas and oil pipeline easements, abandoned or infrequently used railway rights-of-way. Within Waterloo Region some use is already being made of hydro corridors for recreational purposes and there are tremendous benefits in extending areas under such agreements, as well as expanding such agreements to include other municipalities.

Map 3.20 shows the major hydro transmission lines running through the Regional Municipality. Though creating as extended network of lines, few sections of these corridors are owned by the Commission and so directly available for public use if agreements can be concluded. Most routes are under negotiated easement signed with the landowner, and in the majority of cases, these lands traverse rich farmland which are heavily cropped. There are however, a few instances such as through the St. Agatha Forest where some recreation may be conducted with limited adverse effect on agriculture.

The gas easements shown on Map 3.21 are generally less available for outdoor recreation than are hydro corridors. In most cases easements return to crop cultivation and are not maintained as a defined right-of-way. There are however isolated exceptions where this potential exists for example along the east-west alignment through North Dumfries, east of the Grand River.

6. RECREATIONAL SUPPLY INVENTORY

The supply of recreational opportunities within the Waterloo Region is provided through several governmental and non-governmental agencies. The primary recreation service delivery system is the local municipality which, in general, operates and maintains a system of parks and other recreational open space together with indoor recreational facilities such as arenas. The urban municipal recreation departments have in recent years entered into joint sharing of facilities with the local Boards of Education. This arrangement now permits wider access of each to the areas and facilities of the other. Some municipalities have entered into agreements with utility companies for recreational easements along designated utility rights-of-way.

Most of the needs within the Regional Municipality for "Regional Parks" so-called, is being met through the agency of the Grand River Conservation Authority. However, the recreational use of such lands have developed as a use secondary to the Prime Conservation Authority mandates of Water Management and Flood Control. For this reason, most of the conservation authority parks lie along the major Regional watercourses. It should also be noted that emphasis of the Authority often leads to a continuing program of floodland acquisition without explicit concern for the development of the recreational potential of such lands. (This philosophy is also compounded by limited budgets for primarily recreation purposes). As a result there are several properties within the Regional Municipality which have been acquired by the Authority for conservation purposes, but which have not been developed for recreational uses, despite their obvious potential. The converse of this situation is that the Authority is limited to the extent to which it can acquire high priority recreational areas which have low conservation requirements.

The Regional Municipality of Waterloo through the former County Forest Land Program has inherited several tracts which are now being managed by the Ministry of Natural Resources for combined reforestation, recreation, water and wildlife management purposes. The Regional Municipality also owns a six-acre arboretum in Wilmot Township.

The major part of the recreational supply needed within the Region is being met by the private sector in various ways and through several types of agencies. These range from restricted private facilities such as members-only golf clubs, to day camps operated by service clubs or commercial recreation areas.

Together these several interacting agencies and delivery systems create a network of Regional recreational opportunities which by and large has served Regional residents well. However, with increasing pressures of urbanization, increasing size of population, concern of the quality of the environment, increasing incomes, more leisure time etc., an assessment is needed to meet the challenges of the future, in their present or some amended form.

Appendix I presents an Inventory of Recreational Open Space by local municipality within the Region. Each area is indexed as to its ownership, functional type, acreage and permitted recreational activities. The codes used in this inventory are as follows.

Ownership or Jurisdiction

F - Federal Government
P - Provincial Government
R - Regional Government
C - Conservation Authority
L - Local Municipality
P/C - Private Commercial
P/N - Private, Non-Commercial
R/P - Restricted Private (members only)

Functional Type

R - Region-wide Recreation
C - City-wide Recreation
D - District or Community Recreation
N - Neighbourhood and Sub-neighbourhood Recreation
U - Urban Open Space of a general (recreational) nature
G - General Outdoor Recreational Areas
N/A - Natural or semi-natural areas including conservation areas
H - Historical and cultural areas, so designated

ACTIVITIES

A. Resource-oriented

R1 - Beach Swimming
R2 - Motor-boating, sailing
R3 - Other boating, canoeing
R4 - Water skiing
R5 - Hunting
R6 - Fishing

B. Facility-oriented

F1 - Picnicking
F2 - Camping (day or overnight)
F3 - Hiking, cross-country skiing
F4 - Snowmobiling
F5 - Nature trails, exhibits, viewing areas

F6 - Golfing
F7 - Downhill Skiing
F8 - Sportsfields, courts
F9 - Playgrounds
F10 - Playgrounds in association with schools
F11 - Fairgrounds, race tracks
F12 - Historic, cultural sites

This inventory is based on the most current information and offers an overall picture of overall availability of recreational open space. It should be noted that some areas classed as recreational because certain activities are permitted, may be subject to severe controls as to numbers of users or intensity of use. Alternatively, while certain uses such as hiking may be permitted, the land area itself may be in an undeveloped state.

Table 3.1 summarizes the ownership pattern of recreational space within the Region. It will be seen that in terms of gross acres, Conservation Authority provides almost one-third of the available recreational land, closely followed by private interests 29%, and local municipalities 28%. However, since a considerable portion of the Authorities lands are Natural Areas, that is, undeveloped as recreational sites or low intensive use areas, these figures may overstate the actual contribution of the Authority though perhaps not the potential contribution. These inventories suggest a total ratio of 35 acres per 1000 population, and a ratio of 25 acres per 1000 for publicly owned land. The generally accepted ratio is 20 acres per 1000 population.

Looked at from the viewpoint of the functional role of these recreational areas Table 3.2, the endowment of existing and developable potential of Regional recreation space is 13.4 acres per 1 000 population - again generally in excess of accepted standards. While these observations are not in themselves conclusive they do indicate a high priority for obtaining the maximum use from existing areas and facilities before undertaking major investments in acquisition of new lands for recreation.

TABLE 3.1 **OWNERSHIP OF RECREATIONAL OPEN SPACE AREAS BY LOCAL MUNICIPALITIES**

LOCAL MUNICIPALITY	FEDERAL	PROVINCIAL	REGIONAL	CONSERVATION AUTHORITY	LOCAL MUNICIPALITY	PRIVATE SECTOR	TOTAL (Acs.)
Cambridge				550.3	911.1	184.2	1645.6
Kitchener	12.0	65.0	71.5	729.0	1483.8	679.1	3040.4
Waterloo				867.5	368.9	126.3	1362.7
North Dumfries		22.0	273.0	370.5	±25.0	626.2	1316.7
Wellesley			48.0		19.0	106.0	173.0
Wilmot			118.0	123.3	12.6	642.9	896.8
Woolwich			576.0*	700.0	56.4	662.0	1994.4
	12.0 -	87.0 (1%)	1086.5* (10%)	3340.6 (32%)	2876.8 (28%)	3026.7 (29%)	10429.6*

* Includes Waterloo-Wellington Airport.

TABLE 3.2

OUTDOOR RECREATIONAL OPEN SPACE BY ACREAGE, NUMBER, FUNCTION AND MUNICIPALITY[1]
ACRES (NUMBER)

	REGIONAL	CITY-WIDE	DISTRICT OR COMMUNITY	NEIGHBOURHOOD	OTHER URBAN OPEN SPACE	GENERAL OUTDOOR	HISTORICAL/ CULTURAL SITES	NATURAL AREAS
CAMBRIDGE	550.3 (2)	372.1 (4)	429.3 (9)	106.6 (28)		184.2 (2)		550.3 (2)
KITCHENER	544.5 (4)	393.5 (5)	267.5 (11)	246.3 (65)	221.5 (20)	1221.1 (9)	82 (3)	679.0 (7)
WATERLOO	712.0 (1)	183.0 (2)	68.2 (3)	97.7 (19)		126.3 (3)		891.0 (3)
NORTH DUMFRIES	737.4 (8)		25.0 (2)	25 (2)		611 (11)		775.6 (11)
WELLESLEY	48.0 (1)		19.0 (3)			106 (2)		48.0 (1)
WILMOT	259.6 (6)		35.6 (4)			1019.7 (12)		253.6 (5)
WOOLWICH	1114.1 (5)[2]		44.6 (7)			822.9 (8)		161.0 (2)
	3965.9 (27)	948.6 (11)	889.2 (39)	450.6 (112) 475.6 (114)	221.5 (20)	4091.2 (47)	82 (3)	3358.5 (31)

1/ Number of Parks in each group shown in brackets.

2/ Includes W-W Airport.

3/ Data not available. This is an estimate. Note, rows are not additive.

7. POTENTIAL OUTDOOR RECREATION SITES

In 1974, the Regional Municipality of Waterloo commissioned a study with the following purposes:[1]

1) To assess the potential of land in the Regional Municipality to support an extended parks and recreation system.

2) To assess the potential for additional outdoor recreation land to help achieve and maintain ecological balance in the Region.

Using the environmental data bank assembled by Coleman and after constructing parameters to filter out from this landscape data those characteristics indicating areas of recreational potential, and areas of ecological sensitivity and ordering of potential sites was created. This was based on the capability of selected sites to accommodate as diverse a range of recreation activities as possible.

Six possible landscape classes were created based on degree of vegetative cover, that is, whether grassed or lightly forested or whether densely forested. Evaluation was also based on the generalized slope of the area.

Simple Slopes,	0-6%
Moderage Slopes,	6-12%
Steep Slopes,	over 12%

Factors of site diversity, presence of waterbodies, and spatial configuration were considered as modifiers, and sites were grouped into those less than 48 acres and those more than 48 acres.

From this analysis four categories of recreational sites were created.

1) Sites which could accommodate activities on less than 48 acres and could support several activities simultaneously.

2) Sites less than 48 acres but supported segregated activities.

3) Sites greater than 48 acres capable of supporting mixed activities.

4) Sites greater than 48 acres suitable for localized and secregated activities.

The process outlined above thus lent itself to relatively precise parameters of identifying suitability of areas for various types of recreation activities and at the same time recognizing desirable activities.

7.1 Potential Recreational Areas

The Coleman Environmental Data Bank was therefore manipulated to yield information on areas according to predetermined parameters of:

1) Scope - 0 - 6%
6 - 12%
12% +

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[1] John Theberge et al, Study of Potential Outdoor Recreational Sites in the Regional Municipality of Waterloo. "Asking the Land". Faculty of Environmental Studies, University of Waterloo. April 1974

2) Vegetative Cover - Grassland

- 1 - 30% forest cover

30 - 100% forest cover

3) Diversity - representing the best combinations of slope and forest cover.

TABLE 3.3 RECREATION SITE SELECTION PARAMETERS

SLOPE		VEGETATIVE COVER	
	GRASSLAND	1 - 30%	30 - 100%
0 - 6%	A	B	C
6 - 12%	D	E	F
12% +	G	H	I
Urban	U		

The nine possible comginations of slope and vegetative cover were modified to create a more generalized category permitting diversity (i.e., combination of landscape types).

Category	A B D E
Category	C F
Category	G H
Category	I

Recreational activities appropriate to each of these landscape categories and shown on Table 3.3. Sites which had landscape attributes of all four major categories were considered as potential recreation areas. However in order to be included such sites had to meet the following criteria.

(1) Each area had to be a minimum of 48 acres in size.

(2) No parcels were included if they were separated from the main area by an intervening parcel unless such a link served to establish a linear corridor or inter-connected with another major area.

7.2 Priorities and Preferences

Potential recreational sites resulting from the above analysis resulted in a map displaying landscape suitabilities for various types of recreational activity.

Within each recreational "District" were sites exhibiting various suitabilities in various proportions. It therefore became necessary to indicate the differences in distribution of these suitabilities among the districts and to indicate relative suitability of each.

TABLE 3.4 ACTIVITY SUITABILITY INDEX

ACTIVITIES	LANDSCAPE TYPES			
	ABDE	CF	GH	I
Archery	X			
A.T.V.	X			
Camping	X	X		
Cross-Country Running	X	X		
X-Country Skiing	X	X	X	
Cycling	X	X		
Downhill Skiing	X		C	
Go Karting	X			
Golfing	X	X		
Hiking	X	X	X	X
Horseback Riding	X	X	X	X
Hunting	X	X	X	
Minibiking	X	X		
Nature Study	X	X	X	X
Picnicking	X			
Rock Climbing			X	X
Skeet Shooting	X			
Sleigh/Hay Rides	X			
Snowmobiling	X	X		
Snowshoeing	X	X	X	X
Target Shooting	X			
Tobogganing	X			
Walking	X	X	X	X

This was done by using an "index of dispersion" obtained by adding the number of separate blocks of each landscape type in an area and dividing by the number of data points. The higher the index value, the greater the degere of dispersion or diversity of the area and consequently the more desirable the site.

Secondly using the index if dispersion for each "District", the potential recreational areas were ranked into three categories.

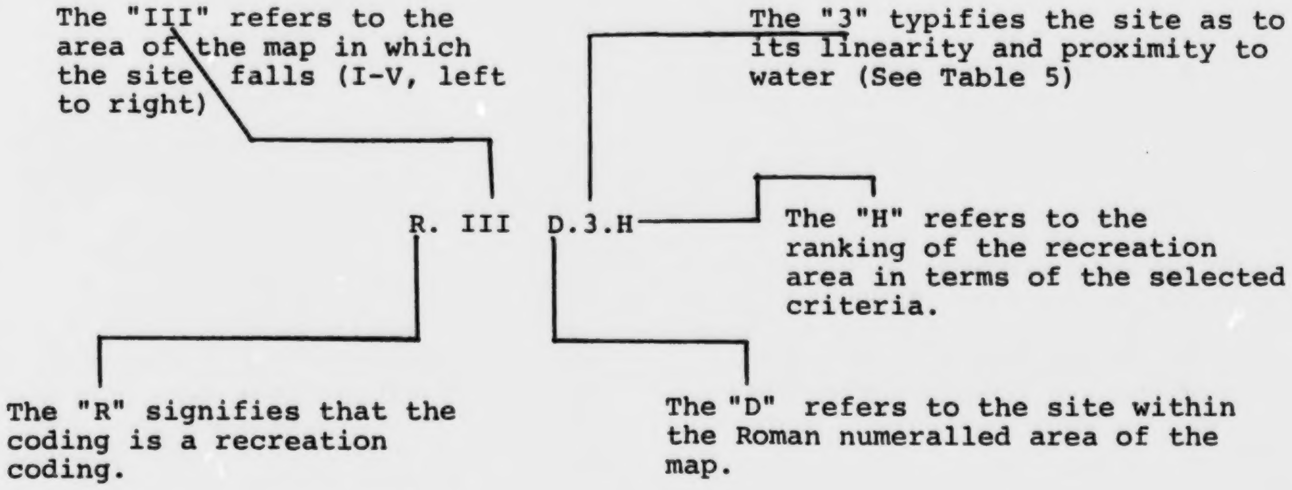
a) Linear sites along major rivers.

b) Modal sites with streams, ponds or lakes.

c) Upland sites with no waterbodies.

These sites are shown on Map 3.23 with their individual index of dispersion and ranking.

THE RECREATION CODE



R. III D.3.H

The "III" refers to the area of the map in which the site falls (I-V, left to right)

The "3" typifies the site as to its linearity and proximity to water (See Table 5)

The "H" refers to the ranking of the recreation area in terms of the selected criteria.

The "R" signifies that the coding is a recreation coding.

The "D" refers to the site within the Roman numeralled area of the map.

7.3 Discussion of Potential Sites

The distribution of potential recreation sites identified by the preceding technique resulted in a spatial distribution of areas considerably influenced by:

1. Major river and tributary system.
2. Lakes, streams and bogs.
3. Forests and woodlands.
4. Dominant geomorphological features.

A. Wellesley

1. Central and South-eastern portions of the Township of Wellesley shows up as areas of medium recreational potential. Combinations of rolling countryside due to presence of the Macton Moraines and Crosshill Spur and the Boomer Creek create conditions for some recreational potential.

   In the south-eastern section surrounding Paradise Lake and the headwaters of Laurel Creek another medium ranked recreation area shows up.

   Outside of these two major areas, medium and low potential sites may be found along the Nith, with a high potential along the Conestogo River up to the Wellesey-Woolwich Township Boundary.

B. Wilmot Township

Wilmot is dominated by the east-west Petersburg-Baden forest tract generally ranked as medium potential. Dispersed sites along Alder Creek emerge also as medium potential areas. The Nith Valley through New Hamburg and south of Haysville is identified of low potential.

C. North Dumfries Township

Three braod recreational patterns were found in North Dumfries.

a) An extensive high potential area south of Cambridge on either side of the Grand River.

b) A mixed high, medium and low disconnected area centred on the Kettle Lakes, ponds and depressions west of Cambridge into the Wrigley-Bannister Lake Area.

c) A continuous band of low potential area extending from the Pinnacle Hill area southwards along Cedar Creek and encompassing the Roseville Swamp regulated area. This band leads into a low potential linear corridor along the Nith River before entering and past Ayr.

D. Woolwich Township

In North Woolwich, the Canagagigue Creek and its tributaries create mixed low and high potential areas. The Grand and its tributary Cox Creek joining up with a western corridor along the Conestogo mark out a disjointed pattern of generally low and medium recreational areas. Along Hopewell Creek another north-south alignment of generally low potential can be seen.

E. Kitchener-Waterloo-Cambridge

The areas of greatest potential within these three urban municipalities of Kitchener-Waterloo and Cambridge lie along or adjacent to the Grand River.

Waterloo - East of Bridge Street, North of Bridgeport.
- Country Squire Estates.

Kitchener - North of Highway #7 along the Grand River.
- Grand River Village Development Area.
- Woolner Flats extending into Chicopee Park.
- Hidden Valley, Homer Watson Park, Doon Area.

F. Cambridge

- Hespeler along the Speed River and its tributaries.
- Galt Moraine Area east of Highway #24.
- Peel Village Area.
- Riverside Park extending to Highway 401.
- Cruickson Park Farm.

8. OPTIONS FOR OPEN SPACE MANAGEMENT

Proper consideration and management of the land and natural resources of the Region should be based on the following assumptions:

(1) That land area requirements for the five uses discussed (i.e.) agriculture, forestry, recreation, wildlife, and mining are not necessarily competitive.

(2) That wise management requires the selection of options which are both economically and ecologically justifiable.

(3) That land resource management is not divorced from water management and the inter-relationship of both is crucial to both area and strategic planning.

(4) Because of these inter-relationships a country-wide management concept should be adopted capable of implementation on small area levels.

(5) Sand and gravel extraction as the only major non-renewable resource should be followed by site rehabilitation to a viable after-use.

Table 3.5 following summarizes the various use capabilities for the major eco-Regions within the Regional Municipalities through identification of the major soil series in each eco-Region. Because of the relatively large land unit covered in each eco-Region and the level of generalization involved in considering the major soil series only, and also the need to evaluate the relative capability of small areas for competing uses, it was decided to use the Regional Environmental Data Bank as a decision-making tool in assigning use preferences to land areas[1].

The following options were built into the land use allocation model.

1. Agriculture Class 1
2. Agriculture Class 2
3. Agriculture Class 3-4 and Forestry Class 1-3
4. Agriculture Class 3-4 and Gravel Class 1-3
5. Agriculture Class 5-7 and Forestry Class 4-7
6. Agriculture Class 5-7 and Gravel Class 4-7.

The resulting open space strategy map indicated in a broad manner the relative suitablity of each four-acre parcel within the Region for each of the six listed combinations of land use choices based on soil capability. (Map 3.24)

Recreational potential was not one of the options inputted into the analysis for two main reasons. A detailed study of potential outdoor recreation sites within the Regional Municipality has recently been completed (Map 3.23) and it was decided to superimpose the results of this study[2] on the open space strategy map in order to highlight open space areas having potential for recreation. It was then possible to identify recreationally significant areas and to recognize the possible conflicts in land use between recreation and other open space uses on specific sites.

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[1] D. Coleman: An Ecological Input into Regional Planning PHD Thesis, School of Urban and Regional Planning, University of Waterloo, 1975.

[2] Study of Potential Outdoor Recreation Sites in the Regional Municipality of Waterloo. Faculty of Environmental Studies, University of Waterloo, April, 1974.

TABLE 3.5

CAPABILITIES

ECO REGION	SOILS (MAJOR SERIES)	AGRICULTURE*	FORESTRY	RECREATION	WILDLIFE (Ungulates)	GRAVEL*	
						B	C
Waterloo Sandhills	Waterloo	1	)	)	)	5	5
	Heidelberg	1 - 2	)	)	)	5	5
	Brant	1,2,3	) 1,2,3	) 6	) 1,3	5	5
	Tuscola	1,2,3	)	)	)	5	5
	Colwood	3,4	)	)	)	5	5
Galt Moraine	Dumfries	2,3,4,5	)	)	)	5	5
	Mannheim	1,2,3	) 2,3,4	) 5,6	) 3	5	5
	Muck	-				5	5
Conestoga Till Plain	Maryhill	2	)	)	)	5	5
	Conestoga	1,2,3	)	)	)	5	5
	Woolwich	1,2,3	)	)	)	5	5
	Guelph	1,2,3	) 1,2,3	) 6	) 1	5	5
	London	1,2,3	)	)	)	5	5
	Freeport	2,3,4	)	)	)	5	5
	Kossuth	2,3	)	)	)	5	5
Woolwich Till Plain	Maryhill	2	)	)	)	5	5
	Conestoga	1,2,3	)	)	)	5	5
	Woolwich	1,2,3	) 1,2,3	) 5	) 1	5	5
	London	1,2,3	)	)	)	5	5
	Guelph	1,2,3	)	)	)	5	5
Wilmot Till Plain	Dorking	4,5,6	)	)	)	5	5
	Perth	2	)	)	)	5	5
	Brookston	3,4	)	)	)	5	5
	Huron	2,3,4	) 1,2,3	) 6	) 2	5	5
	Berrien	2,3,4	)	)	)	5	5
	Wauseon	4	)	)	)	5	4
	Bookston	2,3,4,5	)	)	)	5	5

* After Coleman

TABLE 3.5 (Con't) **CAPABILITIES**

ECO REGION	SOILS (MAJOR SERIES)	AGRICULTURE*	FORESTRY	RECREATION	WILDLIFE (Ungulates)	GRAVEL	
						B	C
Linwood Till Plain	St.Clement	1,2,3,4	)	)	)	5	5
	Wellesley	1,2,3	)	)	)	5	5
	Maplewood	2	) 1,2	) 6	) 1	5	5
	Bennington	1,2,3	)	)	)	5	5
	Tavistock	1,2	)	)	)	5	5
Outwash Channel	Caledon	2-3	)	)	)	2	2
	Ayr	4	)	)	)	4	4
	Lisbon	2-3	)	)	)	5	1
	Martin	6	) 1,2,3	) 4,5	) 2-3	5	5
	Hawkesville	4	)	)	)	4	4
	Burford	2-3	)	)	)	1	3
	Brisbane	2	)	)	)	4	4
Sub Regions							
Elmira Moraine		4,6	1,2	5	3		5
Hawkesville Moraine		3,5	1,2,3	5	2		1, 2
Macton Moraine		1,3	1,2,3	6	1		5
Crosshill Spur		2,3,4,5	2	5	1		5

In Table 3.6 an illustration is given of the potential incidence of compatibility and conflict in cases of mixed uses occurring within a land unit. These effedts relate to occurrences of crop damage, site deterioration, safety, property destruction etc. Secondly, uses are considered as occurring at a single point in time so that active gravel extraction and recreation are shown as conflicting uses though recreation may be a desirable after use on worked-out gravel sites.

TABLE 3.6 COMPATIBILITY OF USES

	FARMING	GRAVEL	FORESTRY	RECREATION
FARMING	+	-	±	±
GRAVEL	-	+	-	-
FORESTRY	±	-	+	±
RECREATION	±	-	±	+

+ = Complementary Relationship

- = Conflicting Relationship

± = Depending on types of activities may be either complementary or competitive.

These relationships may be further sub-classified for the three potentially compatible activities of farming, forestry and recreation. Recreational land use is divided into the individual activities being studied. Each activity is then cross-referenced to agricultural use of land under conditions of crop and after harvest. The same is done for individual recreation activities with reference to young tree planatations and also mature forested stands.

From Table 3.7 it will be seen that many recreational activities not requiring special conditions or facilities may be compatible with agricultural field crop lands after harvest, and may occur also within mature woodlots. From the foregoing, several constraints are evident in a multiple use approach to farm and forested lands for specific recreation activities. These relationships may be grouped as follows:

1) Water-based recreational activities which may be undertaken with little effect on the cultivated fields and woodlots on the adjacent banks.

2) Land-based activities requiring landscape or physical improvements generally should not be inter-mixed with either farming or forestry. These include -

   Downhill Skiing
   Golfing
   Bicycling
   Recreational Driving

3) Some activities which though physically capable of being conducted within farmed or forested areas may be undesirable because of potential damage to soil, crops, or pose a safety problem to the user. The main instance of this is trailbiking.

4) Finally there are the majority of activities which may share the same land units with crops and tree plantations but need to be sensitive to the state of crop, season of year, or require isolation of areas or designation routes.

Following on the above discussion, therefore, the spatial development or design of the open space concept needs to identify and set aside lands meeting the following needs

1) Waterbodies such as lakes, rivers, reservoirs, streams suitable for intensive recreational activities.

2) Waterbodies such as bogs, marshes, swamps unsuited to intensive water-based activities but capable of supporting farms of plant and animal life attractive to nature appreciation or forms of wildlife providing hunting opportunities.

3) Suitable locations for activities requiring specific site conditions of slope, drainage, vegetation, soil conditions for servicing and construction of support facilities. These require isolation from farmed or forested areas and are best indicated as defined and designated nodes for recreation. (e.g.) golfing, downhill skiing, camping.

4) Land parcels or areas suitable for linear type activities. These may indeally inter-connect nodes of intensive use or a node and an urban centre or major transportation artery. Some linear activities may skirt the boundaries of fields and forests or may transect such areas with minimum impact. Included here are hiking, cross-country skiing, snowshoeing, nature appreciation trails.

Other activities require separation from farming and tree planations during the growing period or relegation to the boundaries of such areas. Included here are such activities as trailbiking, snowmobiling.

In summary then, the open space system utilizing concepts of compatibility and conflict of recreational activites with farming and forestry must recognize six categories of activities and their associated open space requirements.

1) Water-based recreation

2) Special purpose nodal (e.g.) downhill skiing, golfing

3) Special purpose linear (e.g.) hiking, trailbiking, horseback riding

4) Multi-purpose, intensive, nodal (e.g.) picnicking, camping, playgrounds

5) Multi-purpose, non-intensive, nodal (e.g.) nature appreciation areas, conservation areas, hiking

6) Multi-purpose linear (e.g.) combined hiking, horseback riding, snowshoeing trails.

It should, however, be further noted that within each of these generic groups there may be further incompatibilities among permitted activities, for example, conflicts between hikers and horseback riders sharing the same trail.

Attempts should, therefore, be made to design a recreational open space system which is sufficiently flexible so as to permit compatible activities within a multi-use context. The product of the study should, therefore, be designation of flexible and adaptable space units meeting multi-purpose needs rather than assigning particular activities to particular areas.

Summary, Conclusions and Recommendations

CHAPTER THREE

1. SUMMARY (MAIN REPORT)

Throughout this study continued emphasis has been given to the importance of reconciling differences between scarce high quality land resources and the needs of a growing population for outdoor recreation space. The challenge facing open space planners is not one of finding or creating opportunities for outdoor recreation, but essentially ensuring that the best use is made of these resources given limitations of convenience, access and funding.

Chapter Three of this study concluded that the Regional Municipality possesses a high capability resource base for various open space uses. Some areas have particular needs for protection or preservation because of fragile and sensitive environments. This constraint therefore forms the main skeleton for the open space system. Around this frame, decisions and choices as to what lands may be used for what purposes need to be made.

Chapter Four indicated that among a majority of Regional residents there was a general preception of inadequate and insufficient opportunities for outdoor recreation. It appeared that for some activities especially water-based recreation this opinion was well-founded. For other activities such as hiking, nature appreciation, camping and golfing, surplus opportunities existed and here the problem might be essentially one of information and/or costs.

Chapter Five revealed that for many activities for which the Region was in short supply, e.g., water-based recreation, adequate opportunities existed within a reasonable travel time of the Regional Municipality. In spite of the competition from other competing municipalities, the Regional Municipality possesses a relative advantage in use of these areas. Given projected population increases, the adequacy of future opportunities might decrease. Relative to Ontario in general the Regional Municipality was well off. The task of integrating these competing needs and demands must be undertaken at both the Provincial and Regional level in order to maintain a balanced approach to the problem. The problem is three-fold:

i) Preserving the open space areas as a vital resource.

ii) Establishing a conceptual framework within which long-term and short-term needs can be evaluated.

iii) Programming this resource to maintain as high a physical, ecological and social role as possible.

A. Preserving Open Space Resource Areas

This study has assumed that Class 1 and 2 farmland should be preserved for agriculture. Further it has been assumed that notwithstanding the primary use of such lands for agriculture, several outdoor recreational activities could and should be conducted together with agriculture. This is possible either on designated sections of farm areas for linked trails through woodlots, in the perimeter of farm fields, on a seasonal basis such as cross-country skiing in winter; or after harvest for uses such as small game hunting in the fall. For farm land of low agricultural capability an evaluation can be made as to its suitability for outdoor recreational activites combined with agriculture. In cases where outdoor recreational activities can be conducted with no modification to the landscape such activities should be promoted. Where land resource areas have been allowed to lie derelict, such areas should be rehabilitated and utilized for active use such as non-intensive agriculture, recreation and forestry.

Recreation activites such as downhill skiing have demanding site requirements and where suitable natural areas exist or artificial areas can be created they should be developed for such purposes with minimum impact on the surrounding productive lands. Lands acquired for conservation and flood control which possess high capabilities for other compatible uses such as passive recreation should be developed and used as multi-purpose areas. Special purpose conservation lands are an expensive use of public funds and should be used for recreational pursuits where feasible thus saving the necessity of raising capital to meet similar recreational needs elsewhere. Similarly, where fragile or sensitive environments and wooded areas exist on privately owned lands, owners should be encouraged to open such lands to compatible public use.

In addition to thse areas, the management concept for resources development should bring into use as an active open space and recreation resource, such areas and facilities as utility corridors, abandoned rail rights-of-way, abandoned gravel pits, and public surplus lands. Though the location and alignment of such areas and facilities will not be dictated by recreational use, with imagination and some organization they can be included into an active system.

It has been shown that provision of future opportunities should proceed on three fronts simultaneously. Firstly, the improvement of the quality of existing areas should be encouraged so as to provide a better range of experiences to more participants. Secondly, more opportunities for open space enjoyment and recreation should be created within the limitations of scarce physical and financial resources, and thirdly, Provincial agencies should act to improve and expand opportunities in localities where base resources exist but bearing in mind the deficiencies being experienced by surrounding population centres.

B. Towards a Framework for Evaluating Needs

The results of the user survey have shown the Regional Municipality of Waterloo to be a high use recreational area. In addition, there are indications of high levels of unsatisfied demand due to unavailable opportunities or poor quality of facilities. Projections of current levels of participation have sown that for the majority of recreational activities, residents must continue to look outside the Regional Municipality of Waterloo for satisfying their outdoor recreational needs. Should adjustments be made for persons wishing and able to participate but not doing so now the need for additional facilities and areas inside and outside the Regional Municipality of Waterloo becomes even greater.

This study has shown that outdoor recreation particpation is strongly influenced by factors of income and time, with the latter being the greater determinant. Further, records of attendance at conservation sites for example show marked peaking in patronage at week-ends with low levels on weekdays.

Consequently, one aspect of the management concept should be to encourage more weekday use of recreational facilities as an alternative to week-end participation either through fee reduction or employment programming or both. If the use area can be located closer to population areas to encourage weekday use by all income groups then this should be considered when locating new areas.

It has been found that there is some clustering of recreational activity participation by type and for this maximum use of areas and facilities will be obtained by creating multi-functional rather than specialized recreational space. Such an approach to the provision of integrated active and passive recreational areas, summer hiking trails and winter snowshoeing trails, summer horseback riding and trail-biking or snowmobiling, will where feasible, provide greatly increased opportunities for many more participants.

Alternatively, from a purely parochial point-of-view, the Regional Municipality of Waterloo might undertake or promote the development of outdoor recreational areas and facilities to the north of the Regional Municipality, and away from easy access routes. This suggestion would not be entirely desirable even within a Regional context, as low income urban uses, would be adversely affected.

Proposals for new recreational opportunities must therefore resolve these and other competing objectives.

C. Resource Programming

Part of the problem of providing needed recreational opportunities is due to resource deficiencies within the Regional Municipality. Part of the problem is also due to the high rates of population growth which this Regional Municipality has experienced in recent years, and increased awareness of the value of recreation. Part of the problem is attributable to the slowness of existing institutions in adjusting to these needs. Some of these are discussed in this section.

Chapter Five of this study clearly illustrated the high degree of interdependence and competition among urban centres and outdoor recreational areas. The Regional Municipality of Waterloo because of its location in the middle of the western part of Southern Ontario, experiences considerable outdoor recreational pressure from urban centres, located to the south and south-east, in search of outdoor recreational opportunities to their north and north-west. As this pressure intensifies opportunities first consumed are those of a Regional nature such as Conservation Areas closest to the major consumer centre, thereafter radiating outwards to more distant facilities.

It has been suggested that some of this pressure may be stopped at the source through the provision of increased outdoor recreational opportunity in places such as Hamilton, Oakville and Brantford. Alternatively, a short-term expediency might be for the Regional Municipality of Waterloo to undertake or promote outdoor recreational areas and facility development to the north of the Regional Municipality and away from easy access routes.

D. Institutional Factors

While part of the challenge facing outdoor recreational planning in the Regional Municipality of Waterloo may be due to resource deficiencies, in addition to exploding demand at both the Regional and inter-Regional level. Some of the problem is also attributable to slowness of existing institutions to adjust to social needs. The inadequacy of current approaches to open space land acquisition at the local level and the less than acceptable role of Provincial involvement were examined in detail. [1]

Information gathered in the course of the Study indicated that the process of recreational open space planning must be more responsive to changing community needs.[2] Alternative methods for securing need opportunities for outdoor recreation were also examined.[3] However, not withstanding the relative success of these mechanisms in the future, there will be a few main institutions whose role must be central to a management concept for open space planning.

i) Land Ownership and Private Rights in Land

It now seems clear that public agencies are finding it financially more difficult to acquire land by purchase in order to obtain open space reserved for recreation. This is even more important for lands adjacent to expanding urban centres where very often the need is greatest. One alternative is for a sharing of the rights to enter upon and use open space resources between the private land owner and the public user under terms and conditions which are fair and beneficial to both.

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[1] Appendix A

[2] Appendix E

[3] Appendix F

ii) Legislation and Regulation

Too often regulations are viewed as the only way of achieving community objectives for open space land. A responsible use of earth, water and air requires a public attitude which recognizes these resources as a legacy from the past loaned to the present to be passed on to the future that will be present in the future. Consequently, legislation without education and information, becomes an impediment to the optimum use of open spaces.

Evidence of this conflict is seen in the rash of by-laws banning hunting, or snowmobiling or trailbiking without necessarily providing alternative areas or encouraging the managed multi-use of these resources.

iii) Recreation Programming

The phenomenon of peaking is one of the most evident aspects of outdoor recreational participation. Typically this is revealed by over-congestion at recreational sites at week-ends, and under-utilization during the week. If we are to accept the importance of satisfying recreation opportunities for the physical, social, and psychological well-being of the individual and the stability of the community [4] we should think about a new rationalizing approach to leisure. This would require spreading out of the patronage of recreation facilities throughout the week.

2. SATISFYING NEEDS

The total supply of outdoor recreation opportunities can be expanded by bringing together public and private open space within an integrated open space system. This would include the following types of areas and environments.

a) Conservation areas designated to protect the natural environment.

b) Conservation areas designed and managed as wildlife habitats and refuges.

c) Conservation areas providing flood control and water management.

d) Regional Forest tracts managed principally for forest regeneration but providing recreational opportunities.

e) City and Community/District Parks providing active or passive or a mix of active and passive recreation.

f) Major special use recreational areas such as golf courses, camping/picnicking areas, swimming/boating areas.

g) Private lands having recreational potential and managed under a multiple purpose use concept such as properties under the Woodlands Improvement Act.

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[1] Appendix E

h) Valley lands and edges which potentially might act as links connecting recreation nodes.

i) Utility corridors whether owned rights-of-way or easements may, where there is no conflict with agricultural operations, be also included.

j) Derelict and surplus government lands such as abandoned gravel pits, remnants from property acquisitions for highway construction may be rehabilitated under a mixed concept, e.g., forestry, agriculture, recreation, picnic areas, wildlife management, or as a primary recreational resource.

k) Lands in the process of transition from a rural use to an urban use may, on a short-term basis, be used for recreational purposes. These areas have the advantage of being located on the urban edge and may accommodate activities requiring no improvements to the area such as trailbiking, snowmobiling, and cross country skiing.

l) Lands designated for urban uses but not being used at present could be used on a temporary basis for various recreational activities.

On the demand side, participation in recreation is influenced not only by socio-economic characteristics of the population, such as age, sex, income, education, but also by the size (numbers) of the population. The level of information available to the population on recreational opportunities, the promotion and advertising of particular activities, and the time-budgets of current and would-be participants, have been found to also influence the demand for recreation.

Among residents of the Regional Municipality of Waterloo, it has been found that high percentages of total recreation is carried out at locations outside of the Regional Municipality. This is primarily true of water-based recreation such as swimming in a natural area, rowing, sailing, canoeing and fishing, most of which occurs in the Bruce - Lake Huron - Georgian Bay area. Other activities such as hunting, have either been prohibited or are severely controlled within the Regional Municipality of Waterloo. Regulations against hunting within the Regional Municipality of Waterloo and a greater abundance of game in the Counties to the north result in most hunters going outside the Regional Municipality to do their hunting. Other activities such as camping and skiing also exhibit a high outflow of users due principally to better quality recreational experiences enjoyed at outside locations. Still other activities such as hiking, snowmobiling, cross country skiing and recreational driving can potentially be linked with routes and links in adjacent Counties. Consequently, use of Regional sub-links or spurs are useful both as a short-term, e.g., afternoon activity, as well as a link to activities of longer duration. However, for most remaining recreational activities the Regional Municipality provides considerable opportunities for participation. It is felt that with imagination and planning both of facilities and areas as well as scheduling of consumption, much of the future requirements for these activities can be met within our Region. This would include such activities as nature appreciation, golfing, snowshoeing, cross country skiing, bicycling and horseback riding.

3. ESTIMATED DEFICITS AND SURPLUSES

In projecting future outdoor recreation opportunities required by Regional Municipality of Waterloo residents, two assumptions were made:

i) That present preferences for recreation activities and frequency of participation will not change in the future.

ii) That the proportion of the population in outdoor recreation will not create a big demand in the immediate future.

Based on the Regional Recreational Survey and on results from the Ontario Recreational Survey, these assumptions while not ideal are considered acceptable. The major determinant affecting levels of recreational participation was found to be available leisure time followed by income and then information.

Consequently, future participation is considered to be primarily a function of population size and current patterns of participation. This is obviously an oversimplification which to be accepted fully suggests that all those desiring outdoor recreation pursuits and capable of participation may do so now. Secondly, it suggests that adequate numbers and quality of recreational opportunities exist within easy access of all would-be participants.

It is difficult to anticipate how many recreational areas by type, quality and capacity will be created in the future without reference to the recommendations of this report. Consequently, estimates of future shortfalls or surpluses will be based on 1976 opportunities (base year), with comparisons and contrasts made for future horizon years. Estimates were prepared for seven activities primarily because of available accurate inventories. Also, these activities are used because the suggested Provincial standards for converting areas and distance measurements to user-opportunities are considered acceptable. The seven activities selected provide a balanced and representative range of Region-wide outdoor recreation activities.

i) Picnicking
ii) Camping
iii) Swimming (in a natural area)
iv) Golfing
v) Snowmobiling
vi) Hiking (snowshoeing, cross country skiing)
vii) Downhill skiing

Some types of activities, e.g., hunting, boating, nature appreciation, recreational driving and bicycling have been omitted because of the difficulty in inventorying existing opportunities.

Conversion standards used are those recommended by the Tourism and Outdoor Recreation Planning Study (TORPS)[1], with the exception of downhill skiing for which opportunities have been calculated using a recent local study [2] and a modified season length of 100 skiing days.

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[1] Tourism and Outdoor Recreation Planning Study, Ontario Recration Supply Inventory:Users Manual, Parliament Buildings, Toronto. (April 1976).

[2] Chicopee Hills Conservation Area Master Plan, Marshall, Macklin and Monaghan Limited (1975).

A. Intra-Regional Results

Table 6.1 shows that of the seven mentioned activities, surplus opportunities exist within the Regional Municipality only in the two cases of camping and picnicking up to the year 1991. Presently, there is a surplus of opportunity for swimming but this is expected to disappear by 1981. The same situation is expected to hold for snowmobiling, although the 1976 surplus is not significant.

TABLE 6.1 INTRA-REGIONAL ESTIMATES OF SURPLUSES AND DEFICITS

(USER DAYS)

ACTIVITIES	ESTIMATED ACCESSIBLE OPPORTUNITIES	ESTIMATED PUBLIC ACTUAL OPPORTUNITIES	ESTIMATED PARTICIPATION			ESTIMATED SUFPLUS (+) DEFICITS (-)		
			1976	1981	1991	1976	1981	1991
1. Swimming	1,628,934	651,573	601,000	713,000	886,000	+ 50,500	- 61,500	-234,500
2. Camping	758,835	455,301	114,000	136,000	169,000	+341,000	+319,301	+286,301
3. Golfing	506,250	253,125	699,000	829,000	1,031,000	-445,875	-575,875	-777,875
4. Snowmobiling	420,300	210,150	197,000	235,000	292,000	+ 13,150	- 24,850	- 81,850
5. Hiking, etc.	127,200	63,600	104,000	124,000	153,000	- 40,400	- 61,000	- 89,400
6. Downhill Skiing	not available[2]	78,000[1]	221,000	263,000	327,000	-143,000	-185,000	-249,000
7. Picnicking[3]	2,510,865	1,255,432	515,538	611,380	758,997	+739,894	+644,053	+515,538

[1] Chicopee Hills Conservation Area Master Plan by Marshall, Macklin and Monaghan Limited

[2] Not calculated in the above report

[3] Based on 65% participation rate, 4 occasions per participant per annum, 84% day use, i.e., within the Regional Municipality (T.O.R.P.S.)

For the remaining activities substantial deficits appeared as early as 1976, increasing in 1981 and 1991 under the assumption of no increases in opportunity. Surprisingly, golfing shows major deficits in opportunity which suggests that existing golf courses are either more congested than they should be in order to provide an acceptable level of experience, or that the turn-over rate is higher than Provincial standards require.

The deficits shown for hiking are not as disturbing as the results suggest. Calculations of opportunity for hiking have assumed a season length of 200 days per year. In effect, there need be no seasonal limits to hiking and the avid hiker may hike 365 days per year if he or she so desires.

Downhill skiing presents the expected picture of persistent shortfalls in desired opportunities within the Regional Municipality. If, as has been argued, the season length in southern Ontario is much less than the assumed 100 days, the deficits may be much greater.

Table 6.1 and the above review assume that existing opportunities are fully available to residents of the Regional Municipality only. In reality some of these opportunities will be used up by persons from outside the Regional Municipality. Thus in order to provide opportunities of the level indicated for residents of this Regional Municipality, access opportunities equal to amounts consumed by persons from outside should be provided also.

B. Inter-Regional Results

The deficit and surplus position presented in Table 6.1 does not represent a true estimate of possible future conditions. Some of the projected future opportunities will be consumed by non-residents. Similarly, Regional residents may go outside the Region for outdoor recreation. In order to ascertain whether or not deficits within the Regional Municipality may be satisfied within municipalities and Regions within a two hour travel zone[1] of Waterloo Region, estimates of total participation from the Region-wide Recreation Survey (Table 3.16) were compared against the Effective Allocated Supply estimates (1974) in Table 5.12.

(The Effective Allocated Supply, 1974 is a calculation of how much supply in user days can be allocated to the Regional Municipality of Waterloo from all supply within a two hour travel time of Kitchener, taking into account competition for that supply from adjacent centres).

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[1] Day use supply area

FIGURE 6.1

INTRA - REGIONAL DEMAND & SUPPLY FOR RECREATION (USER DAYS)

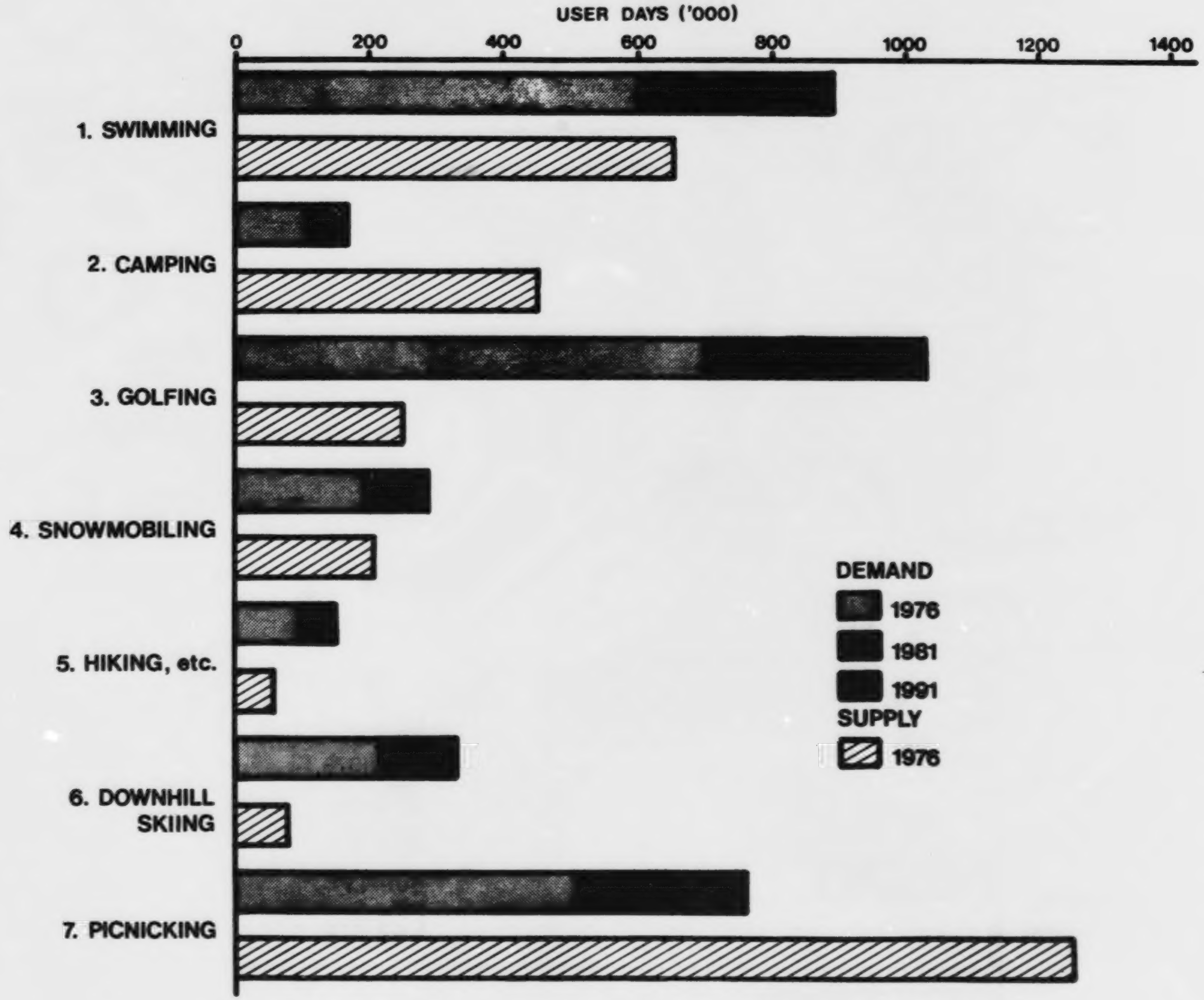
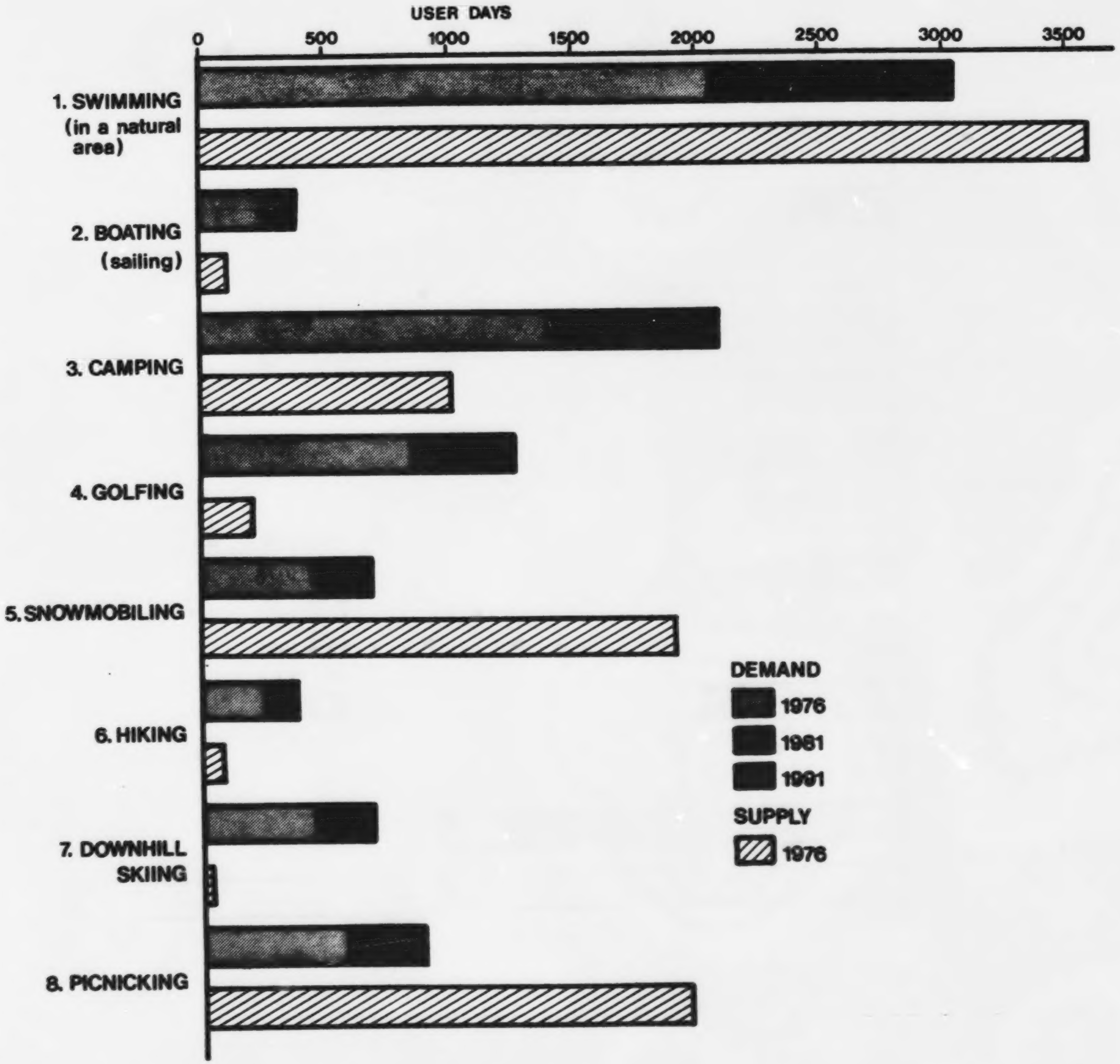


FIGURE 6.2

INTER - REGIONAL
DEMAND & SUPPLY FOR RECREATION
(USER DAYS)



These comparisons presented in Table 6.2 show that the requirements for Regional residents in 1976 can be satisfied for the following activities.

i) Swimming (in a natural area)
ii) Snowmobiling
iii) Picnicking

TABLE 6.2

ESTIMATES OF SURPLUSES AND DEFICITS WITHIN A DAY USE SUPPLY AREA FOR REGIONAL RESIDENTS

(USER DAYS)

ACTIVITIES	EFFECTIVE ALLOCATED SUPPLY (1974) ('000)	ESTIMATED PARTICIPATION			DEFICIT/SURPLUS		
		1976	1981 ('000)	1991	1976	1981 ('000)	1991
1. Swimming (in a natural area)	3,598	2,071	2,457	3,054	1,527	1,141	544
2. Boating (Sailing)	130	277	329	409	- 147	- 199	- 279
3. Camping	1,023	1,425	1,691	2,101	- 402	- 678	-1,078
4. Golfing	219	863	1,024	1,273	- 644	- 805	-1,054
5. Snowmobiling	1,917	468	556	691	1,449	1,361	1,226
6. Hiking	96	268	318	395	- 172	- 222	- 299
7. Downhill Skiing	44	471	559	695	- 427	- 515	- 651
8. Picnicking	1,969	(613)	(728)	(903)	1,356	1,241	1,063

It should be noted that though swimming requirements can be met, boating requirements cannot. This is because boating supply opportunities are calculated on the basis of available launching ramps. Consequently, merely by providing more boat launching facilities or launching without them, these presumed deficiencies can be overcome. Boating standards do not include explicitly considerations of over-crowding on the water body itself, e.g., boats per
In terms of the major lake systems, this is not considered to be a constraint.

Another anomaly exists in the case of camping, for which there is a surplus within the Regional Municipality. However, within an inter-Regional context deficits arise. This may be due to one of three effects or a combination of all three.

i) Consumption of substantial supply opportunities within the Region by non-residents.

ii) Most camping done by Regional residents is outside the Region. However, here the competition from other major centres creates unsatisfied demand.

iii) There is an obvious marked difference in quality in camping within the Regional Municipality as opposed to outside, and one is not a substitute for the other.

The remaining activities indicate deficit conditions, in general, worse than the Region-wide comparison. Consequently, it is not sufficient to assume that corrective action should be left to areas outside the Region as new facilities outside will be of greatest benefit to non-residents of this Region. The three activities of golfing, downhill skiing and hiking in particular should receive closer attention in Region-wide Recreation Planning.

4. CHOICES FOR STRATEGY

A. Concept of Regional Self-Sufficiency

This alternative, in the strategic planning of future outdoor recreational needs, assumes that the Regional Municipality should attempt to provide sufficient opportunities for the future needs of its people. This is a very parochial or narrow-minded approach to recreational planning and could leade to similar action by adjacent municipalities. As a goal or underlying principle in recreational facility planning, this choice assumes that recreational open space areas should be designated or acquired for public use whenever the opportunity arises. This concept has several limitations due to:

i) Lack of an adequate resource within this Region, e.g., water bodies.

ii) Poorer quality recreational experiences on a Regional Municipality basis, e.g., hunting.

iii) High public costs in implementing such a strategy, e.g., land acquisition, development and management.

iv) To be more self-sufficient the Region would have to provide more than it needs because of inflow of recreational consumers from recreation poor areas.

v) Traditional recreational links already exist between Regional residents and non-Regional recreational areas.

B. Concept of Inter-Regional Trade-Offs

A second alternative approach suggests that municipalities and interests within the Regional Municipality should be encouraged to provide opportunities in excess of their needs for the benefit of areas where these particular opportunities are not available or are in low supply. In return, municipalities or counties with excess existing or potential opportunities for activities in which this Regional Municipality is poor, would make these available to Waterloo residents. Through this process of eschange the greatest number of opportunities may be afforded to the greatest number of people.

However, if implemented through public action, residents may find the costs of recreation excessive since need will be dictated by number of people to be serviced. If left to private enterprise, recreational use of land, e.g., for golf courses, may prove to be more profita profitable than agriculture and thus land use in the Regional Municipality of Waterloo may be dictated by the pocket books of outside residents.

Notwithstanding, from a conservationist viewpoint it might be defensible for municipalities with threatened recreational open space resources to endeavour to preserve them for the benefit of outside residents.

C. The Concept of Provincial Balance

In order to promote inter-Regional trade-offs of any kind, a Provincial picture of supply areas, demand requirements, and net movements of recreationists between each should be available.

The allocation of resources to consumer centres both on a current and projected future basis could thus provide the basis for trade-offs. However, implementation of such a policy requires the mediating role of a Provincial agency to ensure a minimum acceptable availablity of opportunity across the Province.

This might require:

i) Allocation of recreation funding to local agencies to bring opportunities closer to consumer centres.

ii) Development of Provincial Parks or "near urban parks" close to Metropolitan centres or centres of large urban concentrations.

iii) Creation of competitive recreation areas to siphon off pressure from congested areas.

iv) Assistance to local Municipalities, agencies, developers, and user groups to encourage wider and better use of their facilities.

5. ELEMENTS OF THE REGIONAL RECREATIONAL PLANNING STRATEGY

A. Defining Goals

The attainment and implementation of a use strategy is seen as a continuing process effective over the long term. Therefore, the key to the strategy is preserving management options for the longest possible period, to obtain the best possible use of resources for the greatest number of people.

i) To provide recreation opportunities in relation both to the user and the use area.

ii) To aim for the greatest number of possible opportunities.

iii) To ensure a sensitive development of potential areas bearing in mind possibilities of multiple use areas and effects on the environment.

iv) To investigate and adopt various measures to acquire and develop lands for open space and recreation uses.

v) To incorporate efforts of public and private interests to implement the strategy.

B. Open Space Areas and Outdoor Recreation System

The open space resources of the Region are viewed as a system perpetually undergoing change. Complementary and competing land uses being conducted on the land resources are agents of stability and transformation. A recreational system must, therefore, look beyond recreational need to integrity of the open space context itself.

Within the Open Space Management system as defined in Figs. several categories of recreational areas have been recognized.

i) Existing and potential recreational activity areas where a concentration of recreational activities is feasible and desirable.

ii) Limited use recreational areas where because of site, configuration or landscape deficiencies, the type, occurrence, frequency and intensity of recreational activities need to be controlled.

iii) Fragile environments and sensitive areas where the accent should be on conservation and protection, yet affording a minimum amount of recreational opportunity for spatially extensive activities such as hiking and nature appreciation.

6. A CONCEPTUAL SYSTEM

The proposed conceptual system is divided into a Structure Plan which locates and describes desirable features of the recreational system. Each feature or element of the system is related to the system as a whole in a Functional plan. Emphasis and priorities in implementation are indicated in a programming and acquisition guideline.

A. The Structure Plan

Existing major open space and recreational areas provide an excellent foundation for building an integrated Region-wide system. The Structure Plan identifies the major recreation sites which could be used in developing a Region-wide recreation system. Each site possess unique characteristics of location, size, accessibility to population centres, degree of development, susceptability to degradation, vegetation slope, drainage and aesthetic appeal. Some areas are potentially capable of rehabilitation for recreational use, some can be used in their current 'natural state', others will be most useful after undergoing site improvement, and still others are already developed recreational areas.

Grand River Conservation Authority Lands

Lands owned by the Grand River Conservation Authority and including the following major areas would be the pivot of the system.

i) The Woolwich Reservoir built and managed principally for flood control purposes may be further developed to accommodate an assortment of recreational uses including fishing, boating, picnicking and camping in addition to being a node along a north-south trail-oriented corridor centred on Canagagigue Creek.

ii) The Horst property to the south-east of the Country Squires development in Waterloo, lies along a picturesque curve of the Grand River and while acquired principally to protect the floodplain could provide low intensity recreational uses with proper measures to protect the local environment.

iii) A similar property has been acquired by the Authority in Woolwich Township at the west end of Township Road 67a. This area of primarily low-lying floodplain is not used for recreational purposes. It does possess potential for low intensive uses.

iv) Although Stanley Park in Kitchener does not lie along the main north south open space asix, i.e., the Grand River, it is an important cross-city link from Wilson Park via Borden Greenway and Kolb Drain to the Grand River Valley. Stanley Park is currently used for recreation.

v) Parts of Natchez Hill in Kitchener, situated at the eastern end of Heritage Drive overlooking the Grand River and its wide floodplain to the south of Forwell Road, has been partially acquired by the Authority for combined recreational and floodplain protection purposes. The Regional Municipality of Waterloo is acquiring other parts for an induced infiltration system. The area has been studied as a potential ski area. A conceptual plan for the area has recommended high density recreational uses back of the scarp, with some of the more sensitive wooded slopes being retained in a natural condition. Some low density recreation is proposed for the floodplain. The rest of the area will accommodate teaching areas, novice and intermediate ski slopes, and intermediate and expert ski slopes.[1] However, any recreational development of this area will be contingent on the preparation of an Environmental Impact Statement.

vi) Woolner Flats in Kitchener, an extensive floodplain area along the Grand, east of Woolner Drive. This area is being investigated as a site for locating a Regional water infiltration inlet. A low intensive limited recreational use is consistent with this use.

vii) Chicopee Hills Conservation Area is located in Kitchener. This is a major alpine ski facility providing well-used winter recreation to Waterloo Region and adjacent municipalities. A recently completed Master Plan for this area recommended installation of improved facilities to increase the number of skiing opportunities. These recommendations are in process of being implemented.

Also major development of this site to accommodate a variety of summer activities such as tennis, swimming, nature appreciation, and trails have been proposed. These two recommendations are consistent with the Regional conceptual system, and the observed need for recreation.[2]

viii) Doon Pioneer Village is located in Kitchener. It is a sixty acre site preserving the cultural heritage of the Waterloo Area and providing opportunities for picnicking, hiking and conservation education. This facility is strategically located from a recreational point of view due to proximity to major open space areas such as Homer Watson Park, Doon Forest Tract, Hidden Valley, Willow Lake, etc. However, it tends to be underutilized during the winter

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[1] Natchez Hill: Conceptual Plan. Prepared for Grand River Conservation Authority and Chicopee Ski Club by Marshall, Macklin, Monaghan Limited (1975).

[2] Chicopee Hills Conservation Area: Master Plan. Prepared for Grand River Conservation Authority by Marshall, Macklin, Monaghan Limited (1975).

ix) Pioneer Tower Area is in Kitchener. This is an expansive floodplain area of some 190 acres. To date, there has been no recreational development proposed for this site though it is capable of considerable low intensity development. The river banks form part of a walking/ equestrian trail, and the Waterloo County Fish and Game Protective Association own and operate a recreation facility further south.

x) Willow Lake/Doon School of Fine Arts is located in Kitchener. This is a pleasant secluded area with encroaching development to the north and west. The dam now fallen into disrepair could be replaced, and the new lake cleaned and flooded. The old mill ruins could be retained as a cultural and historical attraction and integrated into the School of Fine Arts grounds. The area is all privately owned except the bed of the former Willow Lake and the stream outlet.

xi) On the Speed River in Cambridge, the Conservation Authority owns three separate sites which were acquired for reasons of floodplain protection.

   a) Ellis Creek Dam

   b) Fisher Mills Dam

   c) Southern bank of the Speed River between Speedsville Road and Beaverdale Road.

   These areas are attractive nodes along a hiking trail now developed by the City of Cambridge. This section immediately west of Cambridge (Hespeler), with quiet tree shaded country roads is very conducive to horseback riding.

xii) The Grand River Conservation Authority owns the Dumfries Conservation Area in the City of Cambridge, now proposed as a combination active and passive recreational area.

xiii) The Shades Mills Conservation Area is located on the east side of Cambridge. This is an area of some 350 acres providing a wide variety of active and passive recreational opportunities, geared to both summer and winter needs. It is situated on Mill Creek which although passing through heavily built-up sections of Cambridge (Galt), could be joined via a low intensive link to the Grand River.

xiv) Outside of this main north south open space corridor, there are other Conservation Authority lands which may be integrated into the overall structure.

   a) The Laurel Creek Conservation Area (712 acres) in the north west corner of the City of Waterloo is a major recreational area providing year round opportunities to Regional residents. Further south on Laurel Creek, Columbia Lake continues a link through the Waterloo University, Waterloo Park and via the C.N.R. Track to the Waterloo City Centre;

b) The Josephsburg Forest Tract in Wilmot Township situated west of the Hamlet of Josephsburg on Township Road #2 is being used principally for reforestation. While not situated on a major corridor it lies generally within an area of high recreational potential and could be linked via a walking trail to Sunfish Lake, Townline Forest Tract and the source area of the Laurel;

c) Alder Lake, north of the Hamlet of New Dundee is owned by the Grand River Conservaton Authority. However, because the banks are privately owned, the possibility of public recreational related uses occurring here are limited. In addition deteriorating water quality because of septic tank seepage have reduced the attractiveness of this site;

d) Within the settlements of New Hamburg and Ayr, the Grand River Conservation Authority owns small parcels adjacent to the Nith River which relate to the recreational use of this water-way corridor and the potential for wildlife (waterfowl) habitats in this environment;

e) The Dryden Forest Tract off Township Road #2 in North Dumfries, while managed principally as a reforestation area, possesses considerable potential as an educational and recreation-related resource area. The Grand Valley Trail passes through the area, and the tract abounds in game and wildlife;

f) Further south at the intersection of Highway 24a and Regional Road 47, the Grand River Conservation Authority lands focussing on Bannister and Wrigley's Lake, form a major nature appreciation area and wildlife habitat as well as an outdoor education area. In the F.W.R. Dickson Wilderness Area which forms part of the complex there is a unique walking trail through a variety of habitats which occur on this site. The Fairlake Game Farm is a popular breeding and nesting area for wildlife as well as a sanctuary for waterfowl.

Regional Forest Tracts

Also forming part of the proposed Region-wide Open Space and Outdoor Recreation Structure Plan are several forested tracts of land owned by the Regional Municipality of Waterloo and managed by the Ministry of Natural Resources. The locations and sizes of these sites have until now been due principally to the need to acquire, and the asking price, and not to an overall strategy to implement either an outdoor Region-wide recreation or conservation strategy. These parcels provide in certain instances important Region-wide recreation resources for hunting, nature appreciation, angling, snowmobiling, hiking, cross country skiing and picnicking.

Their locations are as follows:

i) Macton Forest Tract -

- approximately 48 acres
  location: Part Lot 9,
  Conc. XIV,
  Wellesley Township

ii) Townline Forest Tract -

- approximately 15 acres
  location: Part Lot 1, Conc. III,
  Block B, Wilmot Township

iii) Petersburg Forest Tract -

- approximately 97 acres
  Part Lot 3, Concession North
  of Sniders Road, Wilmot Twp.

iv) Doon Forest Tract -

- approximately 71 acres
  Beans Unnumbered Tract
  City of Kitchener.

v) Sudden Forest Tract -

- approximately 220 acres
  location: Part Lots 20, 21,
  Concession VIII, North
  Dumfries Township.

vi) Deans Lake Forest Tract -

- approximately 53 acres
  location: Part Lot 2,
  West of Grand River,
  Concession VII, North
  Dumfries Township

vii) Sandy Hill Regional Forest Tract

- approximately 136 acres
  location: Part Lots 63, 76,
  Woolwich Township.

Private Recreational Areas

Major private recreation developments have been included as basic elements within the structure plan;

i) Golf Courses. These facilities, some of which are not open to the public are potentially capable of providing a wide range of summer and winter recreational activity. Many such areas situated beside the major river system may assume the roles of major activity nodes.

ii) Other Major Recreational Areas. Many swimming, picnicking, camping and fishing areas are dispersed throughout the Regional Municipality and are open to the public on a fee-paying basis. Within a total recreational system concept, many of these can assume critical roles in maintaining the system either as activity centres, points of entry or exit, pivots for localized circuits, or stopovers on a more extended route.

Abandoned Pits and Quarries

Where operationally necessary and financially feasible abandoned gravel pits or presently active gravel extraction sites may on depletion be rehabilitated and converted to a recreational use. This would be especially desirable for pits close to the urban area where demand for such uses may be highest. On the other hand, selection of such sites is a delicate matter in order to avoid conflict with residential developments as to noise, dust, etc.

Public Lands

Publicly held lands such as areas adjacent to pollution control centres, or sanitary landfill sites must be regarded as useful elements within the system. Generally, the former are located adjacent to a receiving stream and this heightens their value.

Urban Parks and Open Spaces

The municipal parks and open space systems as an open space system, is structurally part of the Region-wide system. Their physical relationship is a secondary one in that they are located and designed to serve a restricted, e.g., neighbourhood, district, community or municipal area. However, if they should serve as points of entry into the Region-wide system connecting neighbourhoods and residential districts to Region-wide resources with minimum need to use public roads and major streets.

The General Countryside

As has been identified in Chapter Three of this study, the countryside at large possesses many attributes and characteristics which make it attractive for recreational purposes. Principally, the uses of these lands may be for non-recreational uses. Secondarily, it supplements the system by providing amenities such as scenic drives, scenic views and vistas, cultural landscapes, agricultural education experiences, e.g., maple sugar practices, trailways via utility corridors or negotiated link trails and restricted recreation uses. In part, this is illustrated by private lands under the Woodlands Improvement Act which under proper conditions could be used as a recreation resource.

Conceptually, these many and diverse elements of the Structure Plan can be unified by means of limited use corridors focussed on the Regional drainage system. The total utilization of this framework will be limited only by the need to avoid Environmentally Sensitive Areas (Map 3.17) which because of their fragile environments will have to be respected in the actual implementation of the system design.

B. The Functional Plan

The functional plan relates the elements of the system to their physical and ecological surroundings. Secondly, it interrelates each part to the whole system by defining what part each plays. It prescribes the process uf using the available recreational resources so as to obtain the maximum use of these resources but without impairing their ecological value. Often these objectives conflict. Alternatively in order to meet the desired functions, control should be exercised on the intensity of use.

This requirement for the development and management of small areas or individual sites[1] must be based on evaluation of individual sites and requires a much more detailed investigation than is possible or appropriate here. The Region-wide functional plan merely recognizes areas or sites which are significant in a Regional context and indicates how they might be inter-related.

Open Space land for recreation may be either special purpose areas set aside for recreational activity as the principal use, or open space areas used in conjunction with a secondary recreational use. Both types of areas are necessary ingredients in a functional plan. Special purpose recreation areas include "natural park areas" which are typically low intensive use areas, quasi-natural parks which are principally natural but possess designated developed sites for more intensive uses, and intensive parks such as municipal parks and playgrounds. Complementary recreational areas include utility areas such as farmland, forests, mining areas, reservoirs capable of supporting some types of compatible recreation activity. The Regional System may additionally define a third category of open space called "Corridor Open Spaces" which function as "paths and areas of movement or passage" for users of the system or serve as environmental corridors reinforcing the total unity of the system. Within a Region-wide recreational system all three types deserve inclusion.

i) Functional Elements

Recreational areas may be regarded as the "foci" of the recreational system.[1] They operate as activity centres or base areas giving a sense of direction or a sense of distance to segments of the system. Consequently, they are situated with some regard to each other and to the major centres of population which they serve. Together, the location of all activity centres serving a single residential area should exist in a hierarchical relationship to each other ideally based on distance, but modified by suitability of the area to support recreational uses.

Utility open spaces or low intensive recreation areas which, because of land capability or design factors "penetrate" into urban areas increase their value for additional recreation uses. Such "penetrants", or "wedges" provide diversity to the landscape and may assume a significance disproportionate to their size, landscape capability or original design purpose. This is particularly important where urban areas have been allowed to grow out to meet, adjoin or even surround a formerly isolated open space area. Such may be the case for example, of Laurel Creek Conservation Area, or Chicopee Hill Conservation Area, or Doon Regional Forest Tract where new perspectives in the future use of these areas may be necessary.

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[1] For an excellent approach to site evaluation see Daniel R. Snyder et al, Methodology for Regional Site Evluation. Land Use Working Paper #1. South-east Michigan Council of Governments (1973).

[1] S.B. Zisman and Delbert B. Ward, Where Not to Build. A guide for Open Space Planning.

The method of linking recreational "foci" by means of a recreational link may be achieved by all or any one of four methods:

a) Urban areas may be joined by open space links such as creeks, landscaped storm drainage channels, walkways and/or bicycle paths, and hydro corridors all of which can be adopted successfully for this purpose.

b) Major natural features such as a large river, or an elevated ridge, along which recreational uses can be sited can provide the link bewteen urban areas. This is the case of the Grand River, the Conestoga River and to a lesser extent the Speed River and the Nith River.

c) Environmental corridors such as continuous or linear wooded areas, and ecologically significant areas with a low capability for agriculture or intensive urban uses, can form the skeleton for a link system, e.g., Laurel Creek Source Area, or Cedar Creek regulated area.

d) In both urban and rural sections of the Regional Municipality, scenic roads, hydro rights-of-way, oil and gas easements, abandoned or low-level use rail rights-of-way can be further adopted as recreational links.

ii) Methodology and Application

In the table 6.3, each designated recreational area suggested for inclusion in the Region-wide system has been indexed on the following basis.

a) Ownership

Publicly owned areas suggest an easier and less costly possibility of implementing the system assuming that the public agency concerned supports the concept. Privately owned lands may eventually be utilized only with the consent of the owner. This may require various use agreements and conditions of use.[1]

b) Description

This factor indicates the primary purpose recommending the inclusion of the area into the system or the objective of present management in maintaining it as an open space resource.

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[1] Appendix J

c) Recommended Function

Based on the attributes of each area, and its relationship with demand areas and the system as a whole, recreational roles can be assigned. "Links" are areas, corridors, or passages connecting "nodes". "Nodes" are activity centres where a wider range or more intensive activities may occur. They may be "points of entry" onto the system and have parking, washroom, water or refreshment conveniences. They may also be intransit shelters or transfer points to other segments in the system. "Linked Nodes" indicate all such nodes which are an integral and connected part of the system.

"Isolated nodes" are not critical to the operation of the system though they indicate sites which have a future recreational merit.

d) Recommended Use Intensity

High intensity areas suggest that on the basis of "extent of development", carrying capacity, or multiplicity of activities these sites may accommodate relatively higher numbers of users per acre per average day of use. Various activities such as golfing, downhill skiing, picknicking suggest high intensive areas. Hiking and nature appreciation on the other hand, are typically low intensive use activities. High intensive sites may be located within a larger, low intensive land area.

e) Hinterland Capability

This refers to the general suitability of the larger land unit immediately surrounding to support recreational use. This rating is based on Fig.

f) Status

The suggested status of each area indicates whether a recreational use is already being conducted on the site. If asterisked (*) it is suggested that further modifications in use or design may be necessary, .e.g, to implement the link, to expand or curtail certain kinds of activities.

g) Recommended Uses

These are divided into the categories set up in Chapter Three of the study namely:

1) Waterbased
2) Special purpose nodal, e.g., downhill skiing, golfing.
3) Special purpose linear, e.g., hiking, trailbiking, horseback riding.
4) Multi-purpose, intensive nodal picnicking, camping, playgrounds.
5) Multi-purpose, non-intensive nodal, e.g., conservation, hiking trails.
6) Multi-purpose linear, e.g., combined extensive trails.

h) Environmental Sensitivity

In prescribing recreational uses for areas within the system acceptance of such uses may be affected by whether or not the sites impact upon an Environmentally Sensitive Policy Area. (Map 3.17)

iii) The Linked Open Space System

The recommended linked open space system has been developed at two levels.

a) A generalized Region-wide network focussed on features, conditions and alignments of Regional interest.

b) A localized complementary system relating to community and Municipal potentials.

It must be emphasized that neither is independent of the other. The Region-wide system provides the framework within which the individual municipality or user group programs can be implemented on an integrated and consistent basis. Obviously, each level will rely on different techniques and process of implementation. However, when implemented they should all feed into a co-ordinated outdoor recreation network.

At the Regional level, priority focus is on zones of medium to high recreational potential and the alignments necessary for a smooth flow of recreational use. The main link is the river systems of the Grand, Speed, Nith and Conestoga Rivers, with secondary use of the tributary system and major wooded areas. These should eventually link high potential recreation areas through non-reserved space, i.e., multi-use corridors, to the major settlements and major Regional recreational areas, and to major recreational areas outside the Region.

Within this "outer ring" the local inner system should interconnect the present and future community and city park system to each other and to entry points of the Regional system, by means of local creeks, greenways, municipal trails, walkways and utility rights-of-way. Many of the broad concepts outlined at this level are in the process of implementation at the local level. Some are new suggestions. However, without the Region-wide prospective and a framework whereby independent municipal systems may be co-ordinated, local municipality efforts and user opportunities could be thwarted.

7. RECOMMENDATIONS

A. General

1. The Council of the Regional Municipality of Waterloo adopt this Report as a regional policy statement supporting the general policies in the Regional Official Policies Plan on Open Space Resource Planning within the Regional Municipality.

2. That the Councils of the Area Municipalities adopt those recommendations in this report of local significance and interest and implement these proposals in their future planning.

3. That this Report and its recommendations be submitted to the Grand River Conservation Authority, the Ministry of Natural Resources, the Ministry of Agriculture and Food, the Ministry of Housing, the Ministry of Transportation and Communications and the Federal Ministry of Urban Affairs for information, review, comment and co-operative implementation within this Region.

4. That the Premier of Ontario and the Provincial Secretary for Resources Development be urged to consolidate and co-ordinate all provincial open space and recreational policies and programs. This function would facilitate co-ordination, dialogue, regulation and implementation of overall Province-wide Open Space and Recreation Systems.

5. Based on the findings of this Study, the Regional Municipality of Waterloo in co-operation with the Province of Ontario and Area Municipalities should:

   (1) Consolidate existing information on programs, policies and opportunities in one document for easy understanding and use by residents of this Regional Municipality. This would include criteria for financial support, regulations and conditions of access.

   (2) Co-ordinate the activities of Governments and agencies in planning, developing and operating Region-wide open space and recreation facilities in order to obtain maximum benefit from expenditures and to reduce duplication.

   (3) In co-operation with Area Municipalities help with the financing and administration of these recreational facilities recognized as being of Region-wide significance.

   (4) Enter into negotiations with private landowners including railway companies, utility companies, statutory bodies and corporations relative to identifying and defining recreational open space parcels suitable and available for public use, and to negotiate conditions for such use as a means of co-ordinating Region-wide recreational open space functions. This may be on request by a local municipality, Government agency, user group or landowner.

6. That a Regional Open Space and Outdoor Recreational Advisory Committee be set up by Regional Council to review changes and trends in open space recreational use and needs, to assess alternative implementation programs for future Region-wide open space planning and to advise Regional Council on matters relative to the same. Membership of this Committee should be drawn from the resources and expertise available within Area Municipality Technical staff, Grand River Conservation Authority, Ministry of Natural Resources, Ministry of Culture and Recreation, Waterloo Regional Sports Council, Recreation User Groups, the Farming Community, the Private Recreational Industry, and the staff of the Regional Municipality.

B. IMPLEMENTATION

The implementation of the recommendations contained in this Report must be achieved through the efforts of delivery agencies and the private sector jointly co-operating within a generally accepted framework. Implementation of programs should be sensitive to three basic requirements. Firstly they should provide the best possible opportunities to the user. Secondly they should meet both short-term and long-term needs of the Regional Municipality. They should be undertaken bearing in mind the ecological and economic impact on surrounding lands.

1. Provincial Action

(1) The Province of Ontario should establish long-term umbrella policies for overall planning of Provincially funded recreational open space opportunities.

(2) Province-wide indicators of recreational open space 'need' should be established urgently as a planning tool for consistent future projections.

(3) Studies should be undertaken by the Province or with Provincial involvement to establish the cross-flows of users of recreational facilities of need and user statistics of recreational open spaces among Regional Municipalities and Counties in Southern Ontario, and these trends should be regularly monitored.

(4) Within the Provincial review of recreational open space opportunity,(i.e.) supplies and the needs of residents, a range of alternative assistance programs should be considered and if necessary made available to meet peculiar and unique local conditions, such as:

(a) Financial assistance for land acquisition and development of "Near Urban Parks".

(b) Consolidation of various Provincial Assistance Programs for open space land acquisition purposes within one Ministry on the basis of a unified set of criteria to evaluate eligibility. This would allow projects to more easily qualify under a joint set of criteria.

(c) Review of Assistance Programs available to Regional Municipalities and Counties in Southern Ontario for the acquisition of woodlots near urban centres. This needs to be considered specifically in relation to land values.

(d) Consolidation of the development and operation of all Provincially-owned recreational open space under one Ministry (including lands owned and operated by Conservation Authorities). In this context, the Provincial Government should encourage the development and use of Flood Plain lands acquired for flood control purposes, for compatible recreational open space in co-operation with the Conservation Authority and Area and Regional Municipalities.

(5) Recognizing that land acquisition through purchase may not be the most economical, effective or even desirable way of providing future public open space and outdoor recreational areas, the Government of Ontario should investigate alternative mechanisms for preserving and encouraging private open space use for public recreation. This should include such procedures as positive and negative easements[1], transfer of development rights, imposts, incentives for gifts, donations or bequests, and Provincial tax incentives.

(6) Provincial Government working with Counties, Regional and Area Municipalities should develop on an area by area basis, suitable incentive and support programs and negotiate use agreements for securing participation of private landowners in establishing Region-wide recreation systems.

2. Regional Municipal Action

In the course of providing Region-wide recreational and open space facilities and amenities, Regional Municipalities should act as a medium for interpreting and converting Provincial Government Programs into projects beneficial to the Regional Municipality as a whole. This is not an independent function but one shared with the member Area Municipalities. In undertaking this role, the impacts of such proposed recreational projects on Municipalities must be considered. For example:

> Does the proposed recreational use support Area and Regional Policies on open space management?

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[1] Positive easements permit the public to use private lands for certain limited and stated uses in co-operation with the owner. Negative easements limit the private owner in the use of his land.

Is the proposed location the most suitable?

Is the use likely to have a larger than local service area and if so should financial support from the Regional Municipality be forthcoming?

What additional Regional support programs such as roads will be necessary?

(1) The Regional Municipality should implement the Region-wide Open Space and Outdoor Recreation System by acquiring lands for forest expansion purposes under the Woodland Agreement Forest Scheme with the Ministry of Natural Resources. Similarly the Regional Municipality should enter into long term leases with landowners for use or access to lands for purposes of region-wide recreation. Where necessary, legislation governing Regional Municipalities should be amended to achieve these purposes.

(2) The Regional Municipality should review financial and other assistance programs of Provincial and Federal Governments which are available for the development of Region-wide recreational open space. The Regional Municipality should advise on the proper use of such programs in the development of a Region-wide Recreational Open Space System.

(3) Through Regional initiative attempts to develop a co-ordinated and co-operative Region-wide scheme of land acquisition for Region-wide open space purposes, should be undertaken.

(4) Based on the findings of this Report, the Regional Municipality of Waterloo in consultation with local Area Municipalities, the Grand River Conservation Authority, Provincial Government and Private interests should attempt to alleviate those deficiencies of golfing, downhill skiing and hiking which have been recognized within the area.

3. Area Municipal Role

Each individual Municipality is affected by the proposed system since together they provide the spatial setting within which the system is located. Consequently, a Region-wide recreational open space system should be in conformity with Area Municipality Official Plans. Implementation of the system should not impose a hardship on any Municipality or overlap with local programs.

(1) In the planning and development of local Municipal Recreation and Open Space Systems, integration with the overall Region-wide system must be a major consideration wherever applicable.

(2) Where local area Municipal projects may create a Region-wide benefit, conformity with the Regional concept should be a condition of Regional support.

(3) In rural Municipalities where the impact of the Region-wide system will be greatest, and the "need" and financial resources is lowest, the initiative for implementation of the system may have to come from other Government agencies and user groups. In such cases, agencies other than the local Municipality must assume prime responsibility for the costs of implementation. However, whatever is proposed, such projects must conform to local Official Plans.

4. Other Agencies

The Grand River Conservation Authority is currently the single most important provider of Region-wide recreational open space within the Regional Municipality of Waterloo. Provision of recreational opportunity is a secondary or even tertiary function of the Authority, although an expensive one. The Authority has ranked recreation as a low priority within the Regional Municipality and this is compatible with their primary responsibilities of flood control and conservation. In some existing situations, recreational objectives are sometimes in conflict with the prime functions of the Authority such as flood control and conservation.

It is therefore recommended as follows:

(1) That in order to reduce the conflict among competing objectives of the Conservation Authority, the responsibility for developing recreational open space uses on lands surplus to flood control and conservation or using floodplain land owned by the Authority, should be removed from the Authority and placed in the hands of an agency having established prime responsibility in open space recreation. This could be a Municipality, a County, a Region, a Provincial Ministry such as Natural Resources, or a private agency depending upon location, expertise and size of the site.

(2) To achieve this objective the mandate of the Conservation Authority should be reviewed and revised accordingly.

(3) Responsibility for the provision and administration of recreational open space opportunities of Provincial significance but lying within the Region should be transferred to the Ministry of Natural Resources which is well qualified for the role because of its long experience in administering major park areas throughout Ontario. Similarly those of region-wide significance could be leased for $1.00 per year to public agencies within the Region to operate for local residents and if of Region-wide significance the cost to operate should be funded region-wide on a pre-arranged financial basis involving the Regional Municipality.

(4) A co-operative system of planning the use of proposed Region-wide recreational open space areas should be developed among the Ministry of Natural Resources, the Regional Municipality of Waterloo and the local municipalities.

(5) Lands owned by the Ministry of Natural Resources within the Regional Municipality should be managed as a recreational resource within this integrated concept.

(6) Further, through its administration of the Woodlands Improvement Act whereby private woodlots are managed by the Ministry of Natural Resources, multiple purpose open space uses including recreation efforts should be made by the Ministry to expand the use of such woodlots for public recreation.

5. Private Interests

"Private Interests" in developing a Region-wide recreational system range from private landowners whose properties have been considered to have high recreational potential to owners and operators of commercial outdoor recreational areas such as golf courses. Included here are commercial camping areas, rod and gun clubs, and negotiated easements across private properties.

A co-ordinated and operational Region-wide recreational system is not feasible without the active and sympathetic support of these groups. The extent, manner and condition of involvement will be a major factor in finalizing the system and for this purpose, the posting survey[1] conducted in this Regional Municipality in co-operation with the Cambridge office of the Ministry of Natural Resources will prove valuable in formulating policy.

It is recommended as follows:

(1) That through a wide spread program of consultation and discussion, private recreational interests, both resource owners and resource users be co-opted in implementing the Region-wide system.

(2) More particularly, the involvement and commitment of the Agricultural Community should be solicited in making suitable lands available to the public on conditions acceptable to the owners.

(3) Simultaneously, a general education program directed to ensuring responsible use of private lands will be needed in order to reduce the high incidence of vandalism, property damage, and abuse which is common at the present time.

(4) Private landowners opening their lands to public use should be protected from liability in the event of injury to users of such property.

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[1] "Survey of Posted Land and Recreational activity in the Regional Municipality of Waterloo" Cambridge District Office, M.N.R. (1976)

(5) It will also be necessary to provide compensation to such landowners in the event of destruction of loss of property resulting from intentional or careless use of property by public users.

C. Administration

1. In view of the inadequacy of current methods of land acquisitions in Region-wide recreational open space needs, the Province of Ontario in co-operation with the Regional Municipality review and implement the use of alternatives to land acquisition such as:

   (1) Scenic easements, amenity easements

   (2) Positive easements, negative easements

   (3) Purchase and lease back agreements with landowners

   (4) Transfer of development rights

   (5) Tax reduction (including tax exemption, tax rebate, tax deferral) for negotiated access by the public to lands used for public open space and recreation.

2. Whenever as a last resort lands are to be expropriated for public recreational open space purposes of a Region-wide nature, and if it can be shown that such lands when acquired, complement Provincial policies and programs, the Province of Ontario should underwrite fully or partially the expense of expropriation procedures.

3. The Provincial Government through the Secretary for Resources Development should be responsible for establishing and maintaining such data and information on participation, demand and opportunity necessary to monitor recreational trends by County and Regional Municipalities, and their impacts.

D. Programs

Land Use Planning

1. Area Municipalities should be encouraged to revise their Zoning By-laws in order to develop categories of use and regulations which are more sensitive to rural-agricultural characteristics. These should consider type of use, density and intensity of use, impacts and alternative uses on surrounding uses. The Regional Municipality should assist in this work, as requested.

2. Based on a fuller appreciation of the problems and potentials of the countryside a detailed municipality by municipality classification of land areas should be conducted indicating high activity agricultural, forestry, gravel extraction, recreation, conservation and environmentally sensitive areas, and areas where combinations of various uses may be permitted.

3. That the Secretary for Resources Development undertake more effective education programs among private landowners and users particularly in relation to:

   (1) Regeneration of private woodlots

   (2) Soil and water conservation

   (3) Stream management and river bank stabilization

   (4) Fish and wildlife conservation and propagation

   (5) Multi-use land management.

4. The Regional Municipality of Waterloo should encourage as a matter of prime urgency, programs and projects to reduce water runoff, contamination and pollution within the watershed from both urban and rural land practices. Among other factors, this will enhance many recreational open space areas particularly water oriented areas.

Conservation and Recreation

6. Threatened remnant plant and wildlife habitats, regionally significant geological formations, areas of historical cultural, or archeological importance together with unique landscapes should be protected. Protective measures should follow studies of environmental and ecological merits on all subject areas.

7. Designation of unique landscapes, scenic roads and look-outs, linear recreational corridors and access trails should indicate the specific area to be protected, and the need or basis for protection. These considerations may lead to policies in Policy Plans and innovative zoning techniques in Implementation Plans.

8. The private costs of preserving such areas should be eligible for financial and tax benefits where an actual or potential financial loss can be demonstrated.

9. That the Regional Municipality of Waterloo and the Area Municipalities adopt the findings of the Regional Scenic Roads Report prepared for the Waterloo Regional Heritage Foundation and together seek to implement a Region-wide Scenic Roads System on those roads under their jurisdiction and adopt any measures possible to preserve the scenic qualities of such roads.

10. Regulations should be prepared and adopted permitting the upgrading and widening of designated scenic roads for traffic purposes while not jeopardizing the scenic significance of the road or the view from scenic spots along the road.

11. The Regional Municipality of Waterloo together with area Municipalities should develop and maintain "pull-off areas" or scenic look-outs along scenic roads under their jurisdiction, taking care not to jeopardize these scenic qualities and visual amenities which have distinguished such roads. Where applicable such locations may further serve as access points to trails.

12. Where high quality landscapes, amenity areas or sensitive areas are threatened with development and outright purchase by a public authority offers the only means of preservation, funding should be available from such sources as Wintario to achieve this objective.

13. The Regional Municipality in co-operation with the Provincial Government and Area Municipalities should investigate the problems facing private owners and operators of recreational facilities in this area, and should recommend incentives for encouraging wider and better privately funded and operated commercial outdoor recreation establishments.

E. Policies

1. That the role and responsibility of the Regional Municipality of Waterloo in outdoor recreational planning should be:

(1) Liaison with other government agencies and interest groups in order to co-ordinate Region-wide studies and programs and to provide information on Region-wide recreational opportunities of Region-wide significance to residents of the Region;

(2) To monitor results emanating from this report and to undertake Region-wide studies on a continuing basis in co-operation with any or all Area Municipalities, to integrate and co-ordinate efforts of the "delivery" agencies including the private sector in the provision of needed Region-wide recreational open space opportunities recognized in this report;

(3) To assist where feasible in advising and/or funding of Area Municipal efforts in recreational open space planning which support Region-wide recreational open space needs as recognized in this report;

(4) To expand the Regional Agreement Forest Program as a multiple-use open space resource, including recreation;

(5) To develop, on condition of grant, purchase, lease or easement, such surplus lands as Regional Landfill sites, abandoned gravel pits, roads, etc., which can be used for open space recreation of a Region-wide nature.

(6) To assist Area Municipalities and the private delivery agencies to maintain outdoor recreation areas of Region-wide significance which are beyond their resources and where such resources may not qualify for other government assistance;

(7) To encourage the private sector to develop revenue producing recreation opportunities consistent with this report, or to expand the range and public availability of recreation opportunities;

(8) To continue on-going research for the means to implement recommendations in this report.

(9) To seek legislation permitting a responsible role in Region-wide recreational open space requirements.

On the formation of a Region-wide Open Space and Outdoor Recreation Advisory Committee, this body be requested to advise Regional Council on desirable policies for the future use of high potential recreational open space areas within the Region. The following potential major recreational districts are suggested for early study by the Advisory Committee.

(1) City of Cambridge

  (a) Proposed industrial area east of Franklin Boulevard, south of Pinebush Road.

  (b) Devils Creek Regulated area including Salisbury Ridge, Frog's Pond.

  (c) Cruickston Park Farms and Floodplains.

(2) City of Kitchener

  (a) Hidden Valley Area

  (b) Pioneer Tower area including Conservation Authority lands, City owned land, Pioneer Sportsmen Club and Regional Municipality lands.

  (c) Homer Watson Park, Doon Sewage Treatment Plant, Doon Pioneer Village, Willow Lake, Pinnacle Hill, Conestoga College, Doon Golf Course, Doon Regional Forest Tract.

  (d) Lands on the Kitchener-Cambridge Boundary generally lying west of the Grand River Eailway.

(3) City of Waterloo

  (a) Northeastern extremity of the City including Country Squires Area, the Conservation Authority lands together with the floodplains and hazard lands adjoining the river.

(b) Northwestern extremity of the City including Schaeffers Woods, Laurel Woods, Laurel Creek Conservation Area and Forested Hills.

(4) Township of North Dumfries

(a) West River Road corridor extending from the Cambridge City Limits to the Brant County Line and including the lands on either sides of the Road.

(b) Lands lying south of the City of Cambridge and east of the River and more particularly including a north-south corridor centred on Cheese Factory Road.

(c) The Wrigley-Bannister Lake complex and interconnected environmental systems.

(d) Roseville Regulated Area and Cedar Creek.

(5) Township of Wilmot

(a) The St. Agatha-Baden Bush environmental corridors including the Baden Hills.

(b) The Nith River throughout its length within the Regional Municipality.

(6) Township of Wellesley

(a) Macton Moraine

(b) Conestoga River throughout the Township.

(7) Township of Woolwich

(a) Woolwich Reservoir

(b) Conestoga River from Wellesley Township boundary to St. Jacobs.

(c) Elmira Moraine.

3. The Committee should require detailed site evaluation to determine landscape suitability for alternative kinds of recreational activity which might be permitted. Other factors to be considered are potential major user supply areas, accessibility, landowner incentives, costs of implementing a use program, administrative and jurisdictional questions.

4. In their evaluation of continuing trends in recreational opportunities, the Advisory Committee should consider the impact of new opportunities, user patterns or accessibility improvements in adjacent Municipalities such as the Guelph Dam, Puslinch Lake, Elora Gorge Conservation Area, Conestoga Lake, Belwood Lake or other areas within reasonable driving distance of the Regional Municipality.

5. Area Municipalities should attempt to prepare on a consistent and equitable basis such by-laws and regulations pertaining to the recreational use of open space resources such as hunting, snowmobiling, trailbiking, and that the Regional Municipality assume a co-ordinating role.

6. That the Area and Regional Municipalities attempt to obtain by donation, dedication or easement, lands having significant recreational open space value such as streams, ridges, woods, etc.

7. That the Provincial Government, the Regional Municipality of Waterloo, and the Area Municipalities through a co-ordinated and co-operative approach support the acquisition of floodplain lands for safety, conservation, flood control and Region-wide recreational open space uses in conformity with this report.

8. That the Area Municipalities and the Regional Municipality continue and/or commence, reciprocal use of lands and buildings with the two Regional School Boards.

9. The Province consider a special tax on all recreational equipment in lieu of sales tax, to place in a special fund to be used for Province-wide recreational open space needs in conjunction with Wintario funds.

10. That the Regional Municipality, in its Region-wide Transportation Plan Review when considering the management and co-ordination of all transit within the Region, consider means to permit access by the great majority of the Region's citizens to Region-wide outdoor open spaces.

F. Special Considerations

1. In the course of this Report, many items, ideas and concepts were tabled and in order not to have them lost the Advisory Committee should consider their merits and possibilities along with any other such items as from time-to-time are submitted:

   (1) Bicycle lockers at transit stops.

   (2) Bicycle carriers on Commuter buses or special buses to outdoor Region-wide open space facilities.

   (3) Region-wide and co-ordinated bicycle walking paths.

   (4) Region-wide open space, recreational facilities, sport facilities, cultural facilities operated by an Area Municipality and subsidized partially by the Region on a user basis.

   (5) Selective use of rehabilitated gravel pits for compatible recreation.

TABLE 6.3

REGION-WIDE OPEN SPACE AND OUTDOOR RECREATION SITE RECOMMENDATIONS

AREA REFERENCE NUMBER	NAME	OWNERSHIP	DESCRIPTION	FUNCTION	USE INTENSITY	HINTERLAND	STATUS	SUGGESTED COMPATIBLE ACTIVITIES
1.			Gravel Pit					Rehabilitation Recommended
2.	Township Forest Tract	Public	Forested Area	Isolated Activity Center	Low	High	in use	Hiking, Picnicking, Hunting, cross-country skiing, nature appreciation
3.	Sand Hill Tract	Public	Regional Forestry	Isolated Activity Center	Low	High	in use	Hiking, Picnicking, Hunting, cross-country skiing, nature appreciation, snowmobilin
4.			Gravel Pit					Rehabilitation Recommended
5.	Woolwich Reservoir	Public	Flood Control Dam	Linked Node	High	High	Recommend-ed	Swimming, Fishing Boating, Canoeing
6.	Eldale Golf Course	Private	Golf Course	Linked Node	High	Low	in use	Golfing, cross-country skiing, snowshoeing
7.			Gravel Pit					Rehabilitation Recommended
8.			Gravel Pit					Rehabilitation Recommended
9.	West Montrose Dam	Public	Flood Control Dam	Linked Node	High	Low	Proposed	Swimming, Boating Sailing, Picnicking
10.			Gravel Pit					Rehabilitation Recommended

TABLE 6.3

REGION-WIDE OPEN SPACE AND OUTDOOR RECREATION SITE RECOMMENDATIONS

AREA REFERENCE NUMBER	NAME	OWNERSHIP	DESCRIPTION	FUNCTION	USE INTENSITY	HINTERLAND	STATUS	SUGGESTED COMPATIBLE ACTIVITIES
11.			Gravel Pit					Rehabilitation Recommended
12.	West Montrose Campground	Private	Camping Area	Linked Node	High	Low	in use	Camping, Swimming, Fishing, Picnicking
13.			Gravel Pit					
14.			Gravel Pit					
15.			Gravel Pit					
16.	Conestoga Golf Course	Private	Golf Course	Linked Node	High	Low	in use	Golfing, Cross-Country Skiing, Snowshoeing
17.			Gravel Pit					
18.			Gravel Pit					
19.			Gravel Pit					
20.			Gravel Pit					

TABLE 6.3

REGION-WIDE OPEN SPACE AND OUTDOOR RECREATION SITE RECOMMENDATIONS

AREA REFERENCE NUMBER	NAME	OWNERSHIP	DESCRIPTION	FUNCTION	USE INTENSITY	HINTERLAND	STATUS	SUGGESTED COMPATIBLE ACTIVITIES
21.			Gravel Pit	Lined Node		High		Rehabilitation Recommended
22.			Gravel Pit					
23.	Macton Tract	Public	Regional Forest	Isolated Activity Center	Low	Low	in use	Hiking, Picnicking, Hunting, Cross-Country Skiing, Nature Appreciation, Snowmobilin
24.	Paradise Lake	Private	Resort Residential & Recreational	Lined Node	Low	Low	in use	Boating, Sailing, Day-camping, Picnicking, Nature Appreciation
25.	Townline Tract	Public	Regional Forest	Linked Node	Low	Low	in use	Hiking, Picnicking, Hunting, Cross-Country Skiing, Nature Appreciation, Snowmobilinc
26.	Petersburg Tract	Public	Regional Forest	Linked Node	Low	Low	in use	Non-intensive Recreation
27.	Sunvalley Beach and Foxwood	Private	Commercial, Recreation Area & Golf Course	Lined Node	High	Low	in use	Picnicking, swimming, Day-camping
28.	Concordia Club	Private	Private Recreational Area	Linked Node	Low	Low	in use	Picnicking, Day-camping
29.	W.J. Scott Conservation Area	Public	Conservation/ Recreation Area	Linked Node	Low	Low	in use	Swimming, Fishing, Boating, Picnicking, Day-Camping
30.			Gravel Pit					Rehabilitation Recommended

TABLE 6.3

REGION-WIDE OPEN SPACE AND OUTDOOR RECREATION SITE RECOMMENDATIONS

AREA REFERENCE NUMBER	NAME	OWNERSHIP	DESCRIPTION	FUNCTION	USE INTENSITY	HINTERLAND	STATUS	SUGGESTED COMPATIBLE ACTIVITIES
31.	Holiday Beach	Private	Commercial Recreation Area	Linked	High	Low	in use	Swimming, Picnicking, Day-camping
32.								
33.			Gravel Pit					Rehabilitation Recommended
34.			Gravel Pit					Rehabilitation Recommended
35.								
36.	Dundee Golf Course	Private	Golf Course	Linked Node	High	Medium-High	in use	
37.	Country Gardens	Private	Commercial Recreation & Campground	Linked Node	Medium to High	Medium	in use	
38.	Schneiders Park Beach	Private	Private Recreation	Linked Node	Medium to High	Medium	in use	
39.	Intersection Hwy. 7&8, Reg. Rd. 12	Public	Regional Land well wooded	Linked Node	Low Intensity		Proposed and Recommended	Hiking, Hunting, Cross-Country Skiing, Snowmobiling
40.			Gravel Pit					

TABLE 6.3

REGION-WIDE OPEN SPACE AND OUTDOOR RECREATION SITE RECOMMENDATIONS

AREA REFERENCE NUMBER	NAME	OWNERSHIP	DESCRIPTION	FUNCTION	USE INTENSITY	HINTERLAND	STATUS	SUGGESTED COMPATIBLE ACTIVITIES
41.			Gravel Pit					Rehabilitation Recommended
42.	Petersburg Tract	Public	Regional Forest	Linked Node	Low	Medium	in use	Hiking, Picnicking, Cross-Country Skiing, Snowmobiling, Nature Appreciation
43.	Regional Sanitary Landfill Sites	Public	Gravel Pit under Rehabilitation	Linked Node	High	Medium	Proposed & Recommended	
44.	Detweiler Transformer Station	Private	Hydro Distribution Junction	Linked Node	Low	-	Recommended	Hiking route entry/exit point
45.	Westmount Golf Course	Private	Golf Course	Linked Node	High	-	in use	Golfing, Walking, Cycling route, Cross-Country Skiing
46.	Waterloo Park	Public	City-wide Park	Linked Node	High	-	in use	
47.	Laurel Creek Conservation	Public	Conservation and Recreation Areas	Linked Node	Medium	High	in use	
48.	Hillside Park	Public	Community Park	Linked Node	High	-	in use	
49.	Bechtel Farm	Public	City-wide Park	Linked Node	High and Low	-	partly in use, partly under construction	Hiking, Walking, Trails, Intensive Sports Fields
50.	Proposed New Park (Lincoln East)	Public	Community Park	Linked Node	High	-	Recommended	

TABLE 6.3

REGION-WIDE OPEN SPACE AND OUTDOOR RECREATION SITE RECOMMENDATIONS

AREA REFERENCE NUMBER	NAME	OWNERSHIP	DESCRIPTION	FUNCTION	USE INTENSITY	HINTERLAND	STATUS	SUGGESTED COMPATIBLE ACTIVITIES
51.	Kaufman Flats	Private	Picnic-ground	Linked Node	Low		in use	Stop-over along Hiking Route
52.		Private	Gravel Pit	Linked Node	Low	Low	Rehabilitation Recommended	Development of Wildlife Habitats, Walking Trails
53.	Horst Property	Public	Flood-plain	Linked Node	Low	Low	Recommended	Picnicking, Boating Sports Fields, Hiking
54.	Bloomingdale Oxbow	Public	Flood-plain	Linked Node	Low	Low	Recommended	Picnicking, Boating Sports Fields, Hiking
55.	Bloomingdale Oxbow	Public	Flood-plain	Linked Node	Low	Low	Recommended	Picnicking, Boating Sports Fields, Hiking
56.	Kiwanis Park	Public	Developed Recreation Site	Linked Node	High	Low	in use	
57.			Gravel Pit					Rehabilitation Recommended
58.	Merry Hill Golf Course	Private	Golf Course	Isolated Activity Center	High	Low	in use	Trails Activities in Winter
59.			Gravel Pit					Rehabilitation Recommended
60.			Gravel Pit					Rehabilitation Recommended

TABLE 6.3

REGION-WIDE OPEN SPACE AND OUTDOOR RECREATION SITE RECOMMENDATIONS

AREA REFERENCE NUMBER	NAME	OWNERSHIP	DESCRIPTION	FUNCTION	USE INETNSITY	HINTERLAND	STATUS	SUGGESTED COMPATIBLE ACTIVITIES
61.	Bingeman Park	Private	Developed Recreation Site	Linked Node	High	Low	in use	Additional Activities Recommended
62.	Steed and Evans	Private	Gravel Pit	Linked Node	Low	Low		Rehabilitation Recommended, Linear Recreation
63.	Grand River Golf Course	Private	Abandoned Site	Linked Node	Combination High and Low	-	Recommended	Proposed for Urban Development Trails Activities
64.	Springwood Park	Public	Recreation Area	Isolated Node	High	Built-up	in use	
65.	Breithaupt Park	Public	Recreation Area	Isolated Node	Combination High and Low	Built-up	in use	
66.	Victoria Park	Public	Recreation Area	Isolated Node	High	Built-up	in use	
67.	Kaufman Park	Public	Recreation Area	Isolated Node	High	Built-up	in use	
68.	Lakeside Park	Public	Recreation Area	Linked Node	Combination High and Low	Built-up	in use	Protection Sensitive Areas
69.	Concordia Park	Public	Recreation Area	Linked Node	High	Built-up	in use	
70.	Meinzinger Park	Public	Recreation Area	Linked Node	High	Built-up	in use	

TABLE 6.3 REGION-WIDE OPEN SPACE AND OUTDOOR RECREATION SITE RECOMMENDATIONS

AREA REFERENCE NUMBER	NAME	OWNERSHIP	DESCRIPTION	FUNCTION	USE INTENSITY	HINTERLAND	STATUS	SUGGESTED COMPATIBLE ACTIVITIES
71.	McLennan Park	Public	Landfill Site	Linked Node	High	Built-up	Recommended	Future Ski facility and Tobaggan Slide
72.			Gravel Pit					Rehabilitation Recommended
73.			Gravel Pit					Rehabilitation Recommended
74.			Gravel Pit					Rehabilitation Recommended
75.			Gravel Pit					Rehabilitation Recommended
76.			Gravel Pit and Wooded Area	Linked Node	Combination High and Low	Medium and High		Rehabilitation Recommended Adjacent to Steckle Woods
77.	Homer Watson Park	Public	Recreation Area	Linked Node	Low	High	in use	
78.	Doon Pioneer Village	Public	Recreation Area	Linked Node	High	High	in use	
79.	Doon Sewage Treatment Plant and	Public		Linked Node	Low	High	-	Joint Use Recommended
	Regional Forest Tract						in use	Trails and Low Intensity Recreation

TABLE 6.3

REGION-WIDE OPEN SPACE AND OUTDOOR RECREATION SITE RECOMMENDATIONS

AREA REFERENCE NUMBER	NAME	OWNERSHIP	DESCRIPTION	FUNCTION	USE INTENSITY	HINTERLAND	STATUS	SUGGESTED COMPATIBLE ACTIVITIES
80.		Public	Flood-plain	Linked Node	Low	High	Recommended	Linked Trails, Picnicking
81.		Public	Reforestation Area	-	-	-	-	Young Plantation, No Recreational Use at this time
82.	Chicopee Park	Public	Ski Hill and Conservation Area	Linked Node	Low and High	Medium to High	in use	Expanded uses Recommended. Protect Sensitive Area
83.	Idlewood Park	Public	Recreation Area	Linked Node	Low and High	Medium	in use	
84.	Rockway Golf Club	Public	Golf Course	Linked Node	High	Built-up	in use	Well-used Facilities and Areas
85.	Stanley Park Conservation Area	Public	Conservation Area	Linked Node	Low	Built-up	in use	Well-used Facilities and Areas
86.	Centennial Stadium	Public	Recreation Area	Linked Node	High	Built-up	in use	Well-used Facilities and Areas
87.	Tecumseh Park	Public	Recreation Area	Linked Node	High	Built-up	in use	
88.	Blue Springs	Private	Picnic Area	Linked Node	High	Low	not in use	Rehabilitation and Improvement Recommended
89.			Gravel Pit	Linked Node	Low	Low		Rehabilitation to uses including passive recreation

TABLE 6.3 REGION-WIDE OPEN SPACE AND OUTDOOR RECREATION SITE RECOMMENDATIONS

AREA REFERENCE NUMBER	NAME	OWNERSHIP	DESCRIPTION	FUNCTION	USE INTENSITY	HINTERLAND	STATUS	SUGGESTED COMPATIBLE ACTIVITIES
90.	Natchez Hills	Public	Wooded Slope	Linked Node	Combination Low and High	Low	Suggested Ski Facility	Recreation use subject to E.S.P.A.
91.	Woolner Flats	Public	Flood-plain	Linked Node	Low	Low, Medium		Passive Recreation such as Picnicking recommended
92.	Beaverdale Golf Course	Private	Golf Course	Linked Node	Low and High	Low	in use	Expansion to include other Recreational activities
93.	Brookfield Golf Course	Private	Golf Course	Linked Node	Low and High	Low	in use	Particularly Winter is recommended
94.	Fischer Mills Dam	Public	Small Dam	Linked Node	Low	Low	-	Picnic site, Horse-back riding trail
95.	Hespeler Dam	Public and Private	Small Dam	Linked Node	Low	Built-up	-	Pool water quality, water-side picnic grounds and boating
96.			Gravel Pit					Rehabilitation Recommended
97.	Riverside Park	Public	Recreation Area	Linked Node	Low and High	Low	in use	Could be expanded to include novice skiing
98.	Doon Golf Course	Public	Golf Course	Linked Node	High	High and Medium	in use	Wider Winter Recreation Activity
99.			Gravel Pit					Rehabilitation Recommended

TABLE 6.3

REGION-WIDE OPEN SPACE AND OUTDOOR RECREATION SITE RECOMMENDATIONS

AREA REFERENCE NUMBER	NAME	OWNERSHIP	DESCRIPTION	FUNCTION	USE INTENSITY	HINTERLAND	STATUS	SUGGESTED COMPATIBLE ACTIVITIES
100.			Gravel Pit					Rehabilitation Recommended
101.			Gravel Pit					Rehabilitation Recommended
102.			Gravel Pit					Rehabilitation Recommended
103.	Ayr Dam	Public	Small Dam	Linked Node	Low	Low	-	Stream Bank Improvement, Wildlife (duck) Habitat
104.	F.W. Dickson Wilderness Area	Public	Wildlife Habitat	Linked Node	Low	High	in use	Present level of use to continue
105.	Bannister Wrigley Lake Complex	Public	Kettle Lake	Linked Node	Low	Low	in use	Present level of use to continue
106.	Sudden Tract	Public	Forest Tract	Linked Node	Low	High	in use	Present level of use to continue
107.		Public	Forest Area	Linked Node	Low	High	in use	Present level of use to continue
108.	Dryden Tract	Public	Forested Area	Linked Node	Low	High	in use	Present level of use to continue
109.			Gravel Pit					Rehabilitation Recommended

TABLE 6.3 REGION-WIDE OPEN SPACE AND OUTDOOR RECREATION SITE RECOMMENDATIONS

AREA REFERENCE NUMBER	NAME	OWNERSHIP	DESCRIPTION	FUNCTION	USE INTENSITY	HINTERLAND	STATUS	SUGGESTED COMPATIBLE ACTIVITIES
110.			Gravel Pit					Rehabilitation Recommended
111.	Dean's Lake Tract	Public	Forested Area	Isolated Node	Low	High	in use	Present level and type of use to continue
112.			Gravel Pit					Rehabilitation to Continue
113.			Gravel Pit					Rehabilitation to Continue
114.			Gravel Pit					Rehabilitation to Continue
115.	Chicopehill Park	Public	Recreation Area	Linked Node	High	Built-up	in use	-
116.	Perey Hill Playground	Public	Recreation Area	Linked Node	High	Built-up	in use	-
117.	Soper Park	Public	Recreation Area	Linked Node	High	Built-up	in use	-
118.	Victoria Park	Public	Recreation Area	Linked Node	High	Built-up	in use	-
119.	Galt Golf Course	Private	Golf Course	Isolated Node	High	Built-up	in use	Winter Trails Activities

TABLE 6.3

REGION-WIDE OPEN SPACE AND OUTDOOR RECREATION SITE RECOMMENDATIONS

AREA REFERENCE NUMBER	NAME	OWNERSHIP	DESCRIPTION	FUNCTION	USE INTENSITY	HINTERLAND	STATUS	SUGGESTED COMPATIBLE ACTIVITIES
120.	Hilborn Property	Public	Recreation Area	Linked Node	High and Low	Built-up	partly in use	Skiing, Tobagganing, Picnicking
121.			Gravel Pit					Rehabilitation Recommended
122.	Hespeler Floodplain Lands	Public	Floodplains	Linked Node	Low	Low	undeveloped	Low, intensive uses, like Cross-Country skiing, Horseback riding
123.	Galt Industrial Area	Public	Wooded Area	Linked Node	Low	Low	undeveloped	Low, intensive uses, like Cross-Country skiing, Horseback riding
124.	Shades Mills Conservation Area	Public	Conservation Area	Linked Node	Low	Low	in use	no change
125.		Public	Landfill Site	Isolated Node	High	Low	undeveloped	Downhill Skiing
126.	Imbercourt Riding School	Private	Recreation Area	Linked Node	Low	Low	in use	-
127.	Cambridge Golf Course	Public	Golf Course	Linked Node	High	Low	in use	encourage winter activities, horseback riding on edges

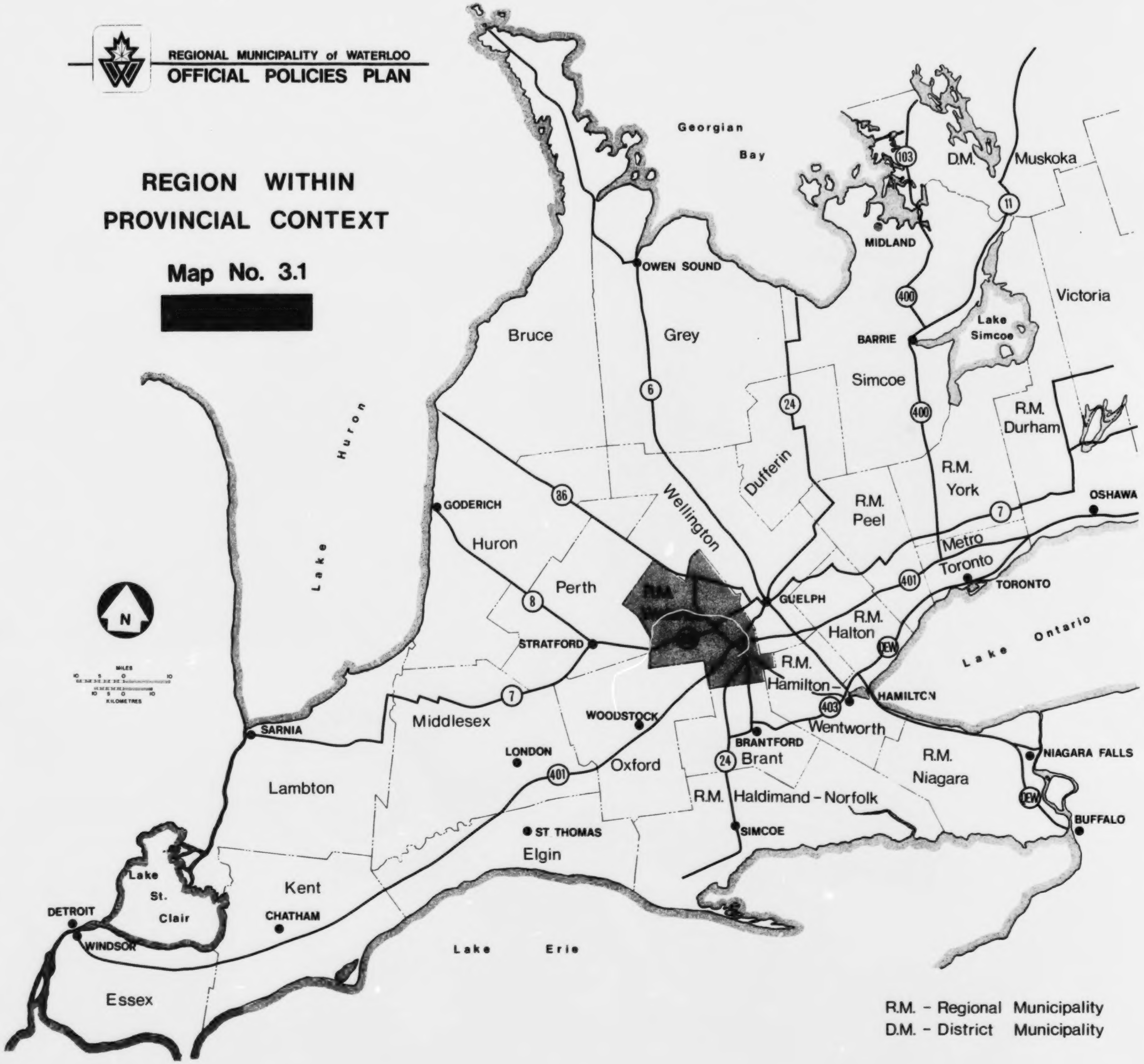
MAPS

REGIONAL MUNICIPALITY of WATERLOO
OFFICIAL POLICIES PLAN

REGION WITHIN PROVINCIAL CONTEXT

Map No. 3.1

[redacted]



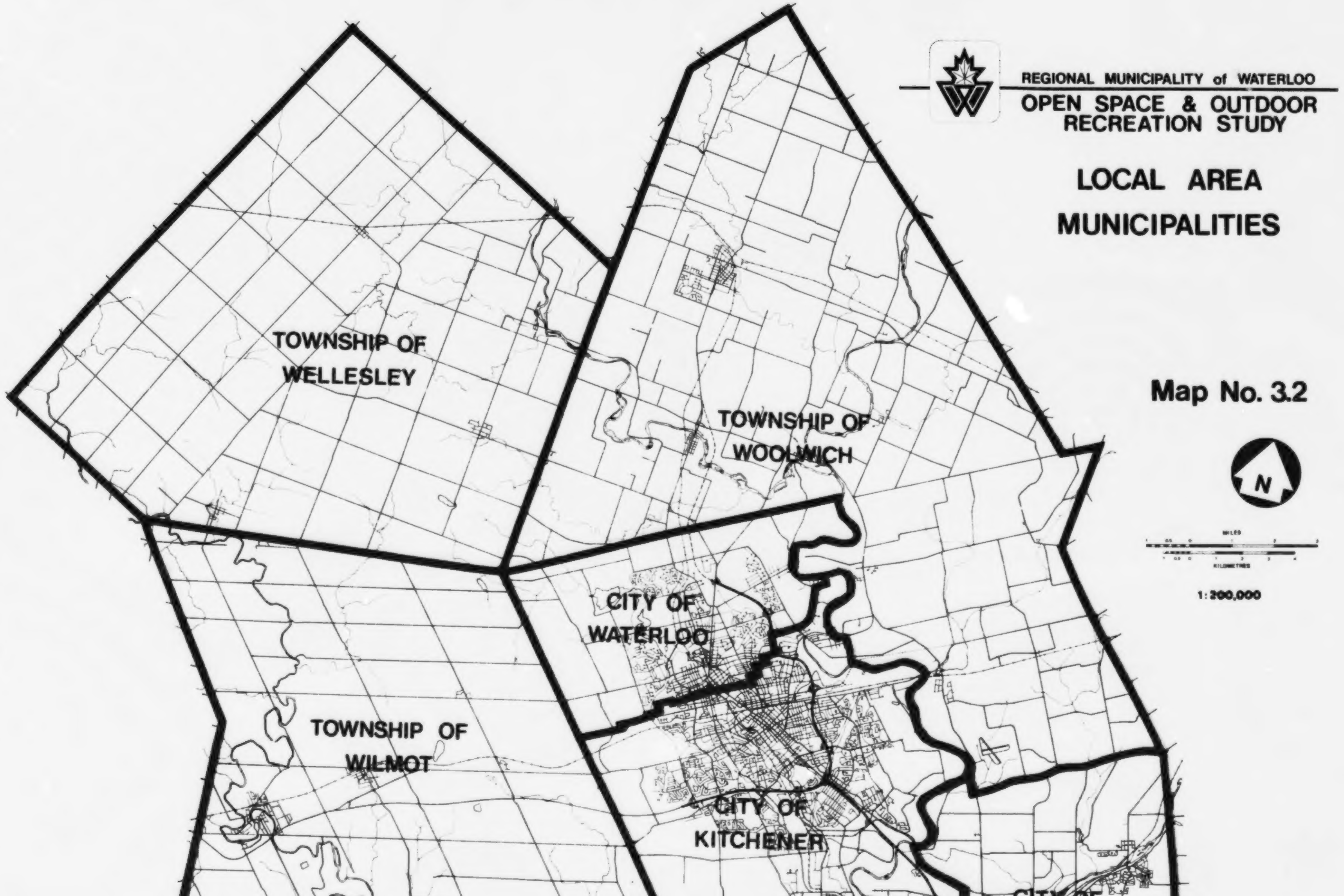
Georgian Bay
D.M. Muskoka
103
11
MIDLAND
OWEN SOUND
400
Victoria
Lake Simcoe
BARRIE
Bruce
Grey
6
24
Simcoe
R.M. Durham
Lake Huron
Dufferin
R.M. York
86
GODERICH
Wellington
R.M. Peel
7
OSHAWA
Huron
Metro Toronto
401
TORONTO
Perth
8
R.M.
GUELPH
R.M. Halton
QEW
Lake Ontario
N
STRATFORD
R.M. Hamilton-Wentworth
HAMILTON
403
MILES
KILOMETRES
WOODSTOCK
SARNIA
Middlesex
BRANTFORD
Brant
R.M. Niagara
NIAGARA FALLS
LONDON
Oxford
401
Lambton
R.M. Haldimand - Norfolk
BUFFALO
ST THOMAS
SIMCOE
Elgin
Kent
Lake St. Clair
DETROIT
CHATHAM
WINDSOR
Lake Erie
Essex

R.M. - Regional Municipality
D.M. - District Municipality

REGIONAL MUNICIPALITY of WATERLOO
OPEN SPACE & OUTDOOR RECREATION STUDY

LOCAL AREA MUNICIPALITIES

Map No. 3.2


TOWNSHIP OF WELLESLEY
TOWNSHIP OF WOOLWICH
CITY OF WATERLOO
TOWNSHIP OF WILMOT
CITY OF KITCHENER
CITY OF CAMBRIDGE
TOWNSHIP OF NORTH DUMFRIES
N
MILES
KILOMETRES
1:200,000

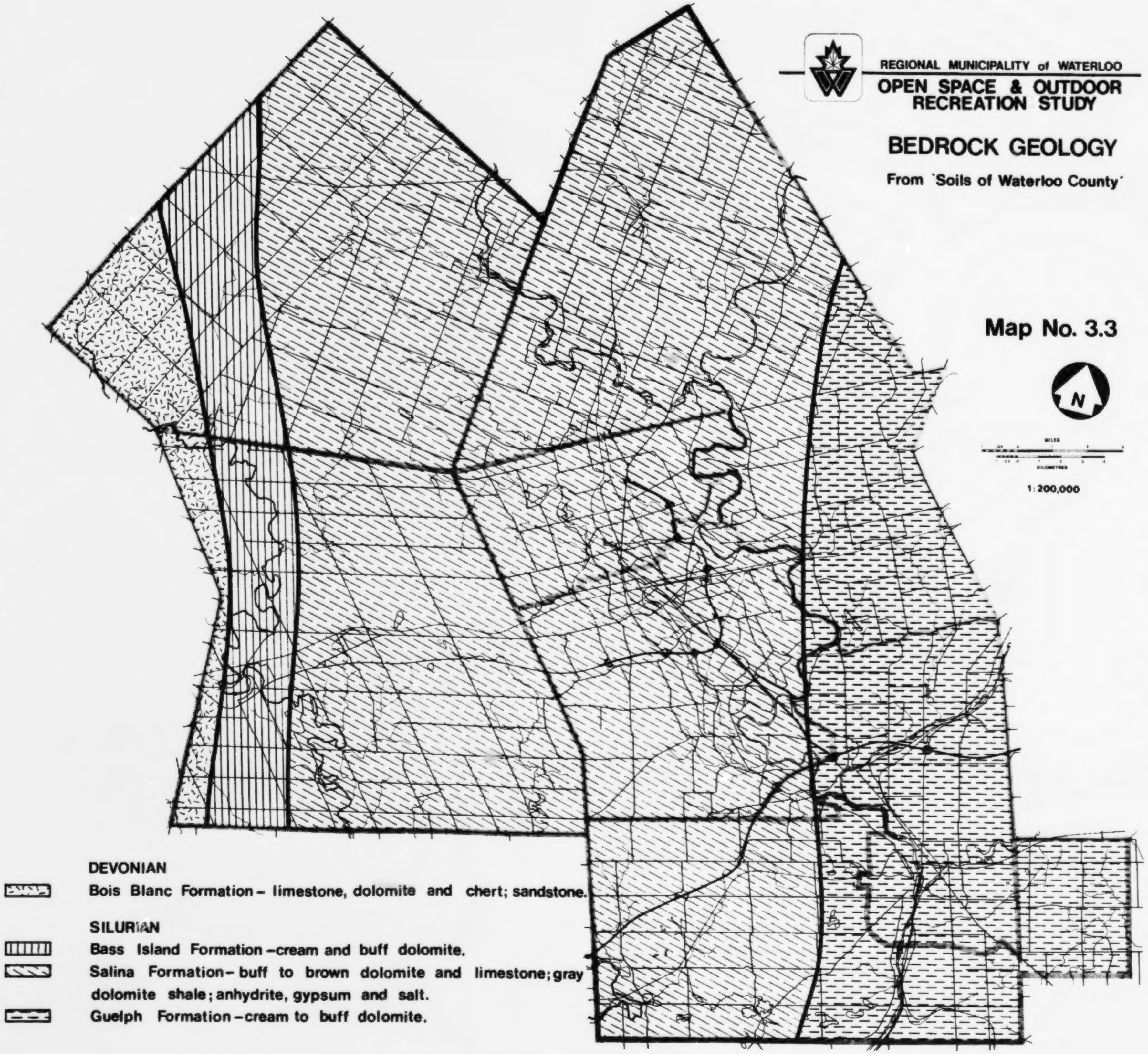
REGIONAL MUNICIPALITY of WATERLOO

OPEN SPACE & OUTDOOR RECREATION STUDY

BEDROCK GEOLOGY

From 'Soils of Waterloo County'

Map No. 3.3


N
MILES
1 0.5 0 1 2 3
1 0.5 0 1 2 3 4
KILOMETRES
1:200,000

DEVONIAN

▨ Bois Blanc Formation – limestone, dolomite and chert; sandstone.

SILURIAN

▥ Bass Island Formation – cream and buff dolomite.

▨ Salina Formation – buff to brown dolomite and limestone; gray dolomite shale; anhydrite, gypsum and salt.

▭ Guelph Formation – cream to buff dolomite.

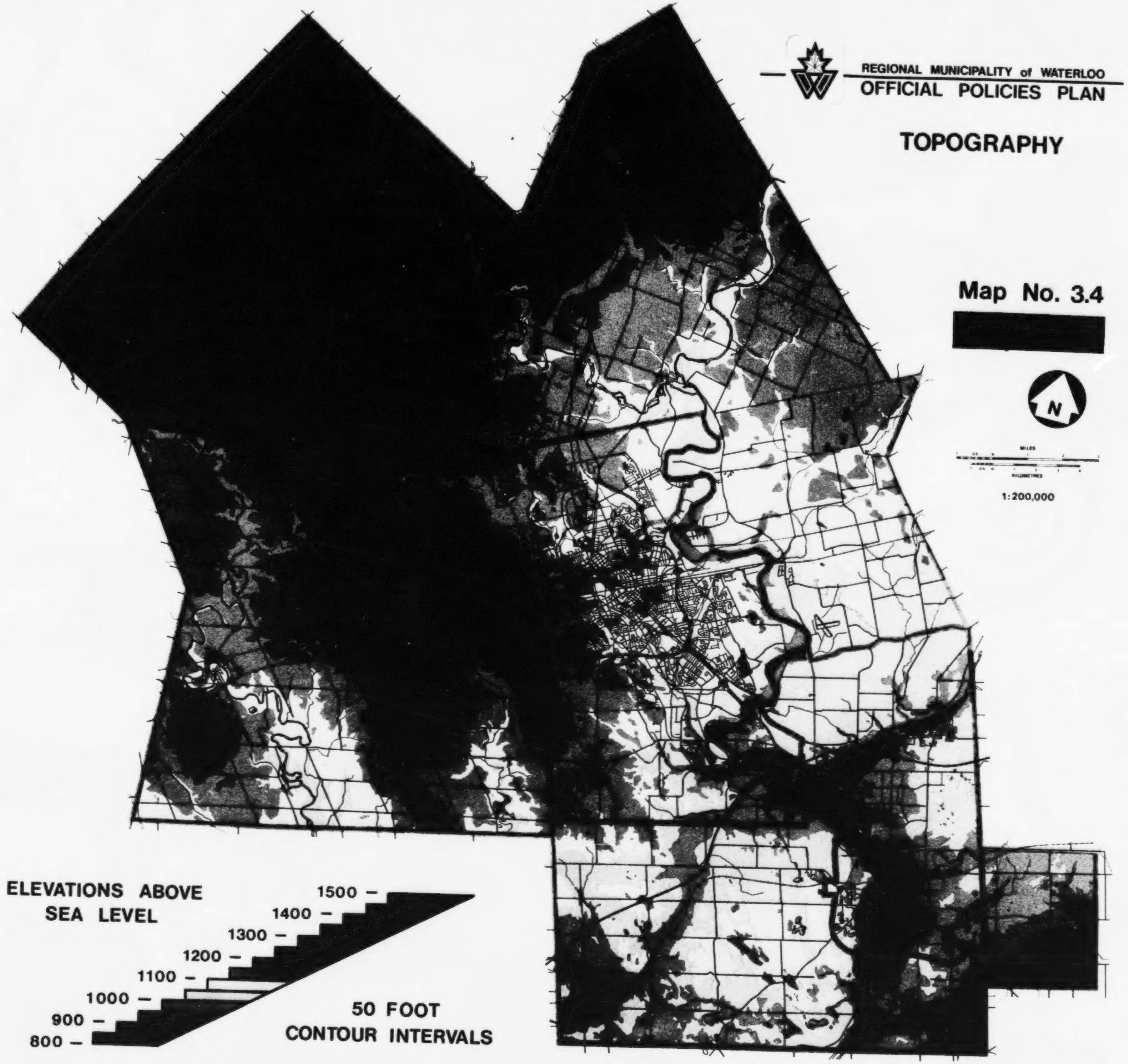
REGIONAL MUNICIPALITY of WATERLOO

OFFICIAL POLICIES PLAN

TOPOGRAPHY

Map No. 3.4

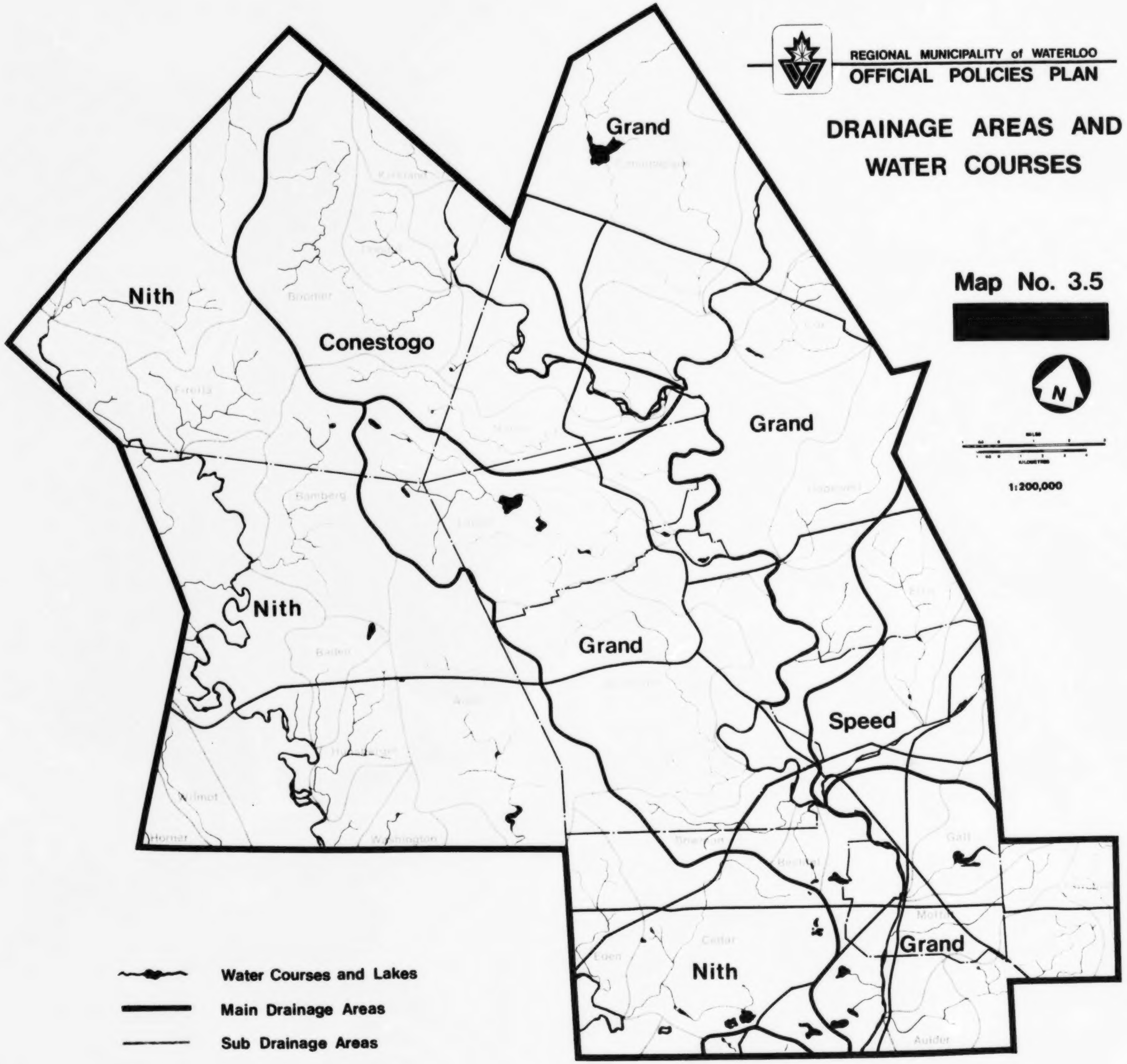
[redacted]


N
MILES
1 0.5 0 1 2 3
1 0.5 0 1 2 3 4
KILOMETRES
1:200,000
ELEVATIONS ABOVE SEA LEVEL
1500 –
1400 –
1300 –
1200 –
1100 –
1000 –
900 –
800 –
50 FOOT CONTOUR INTERVALS

REGIONAL MUNICIPALITY of WATERLOO
OFFICIAL POLICIES PLAN

DRAINAGE AREAS AND WATER COURSES

Map No. 3.5


Grand
Nith
Conestogo
Grand
Nith
Grand
Speed
Grand
Nith
N
1:200,000
Water Courses and Lakes
Main Drainage Areas
Sub Drainage Areas

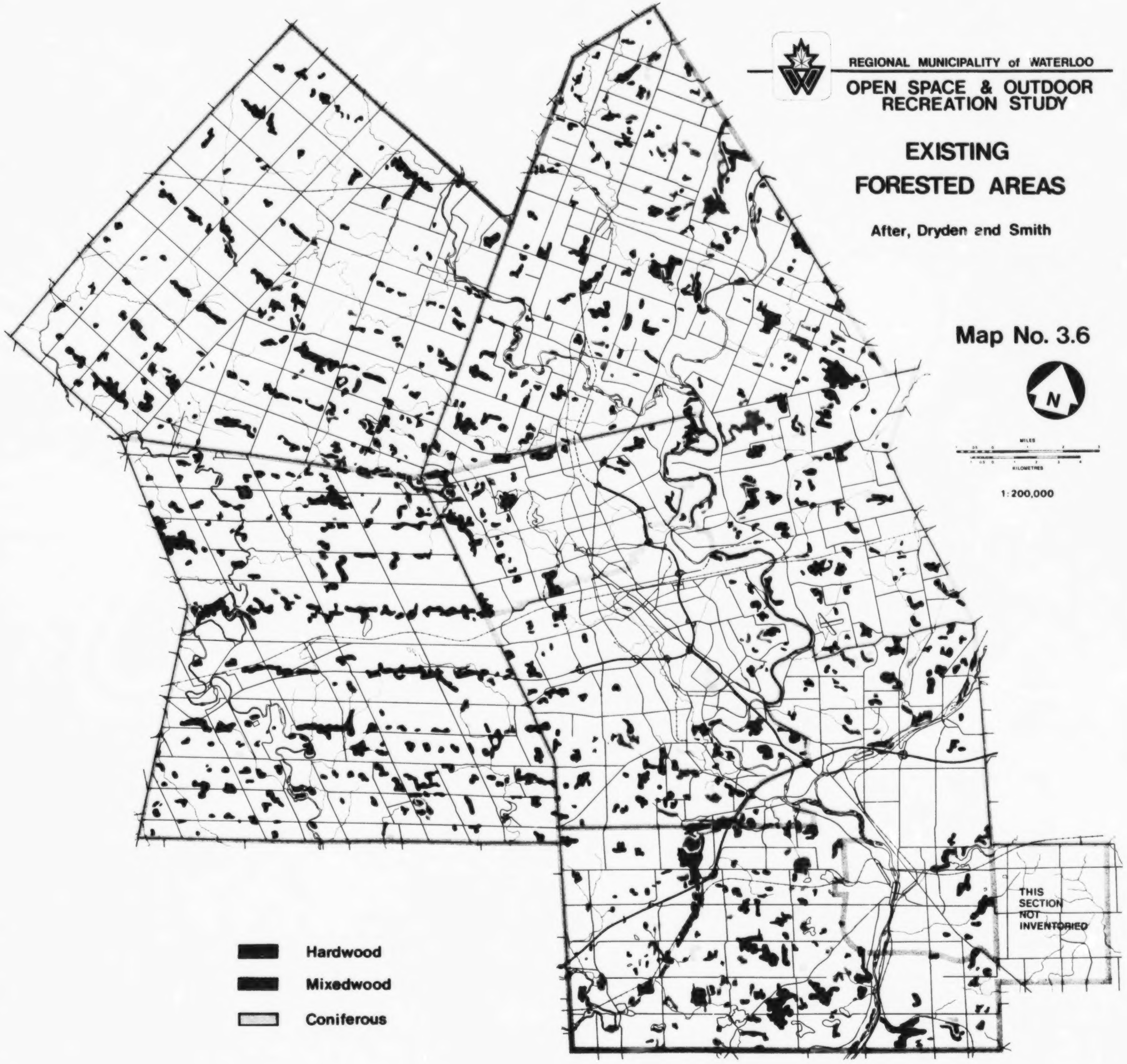
REGIONAL MUNICIPALITY of WATERLOO

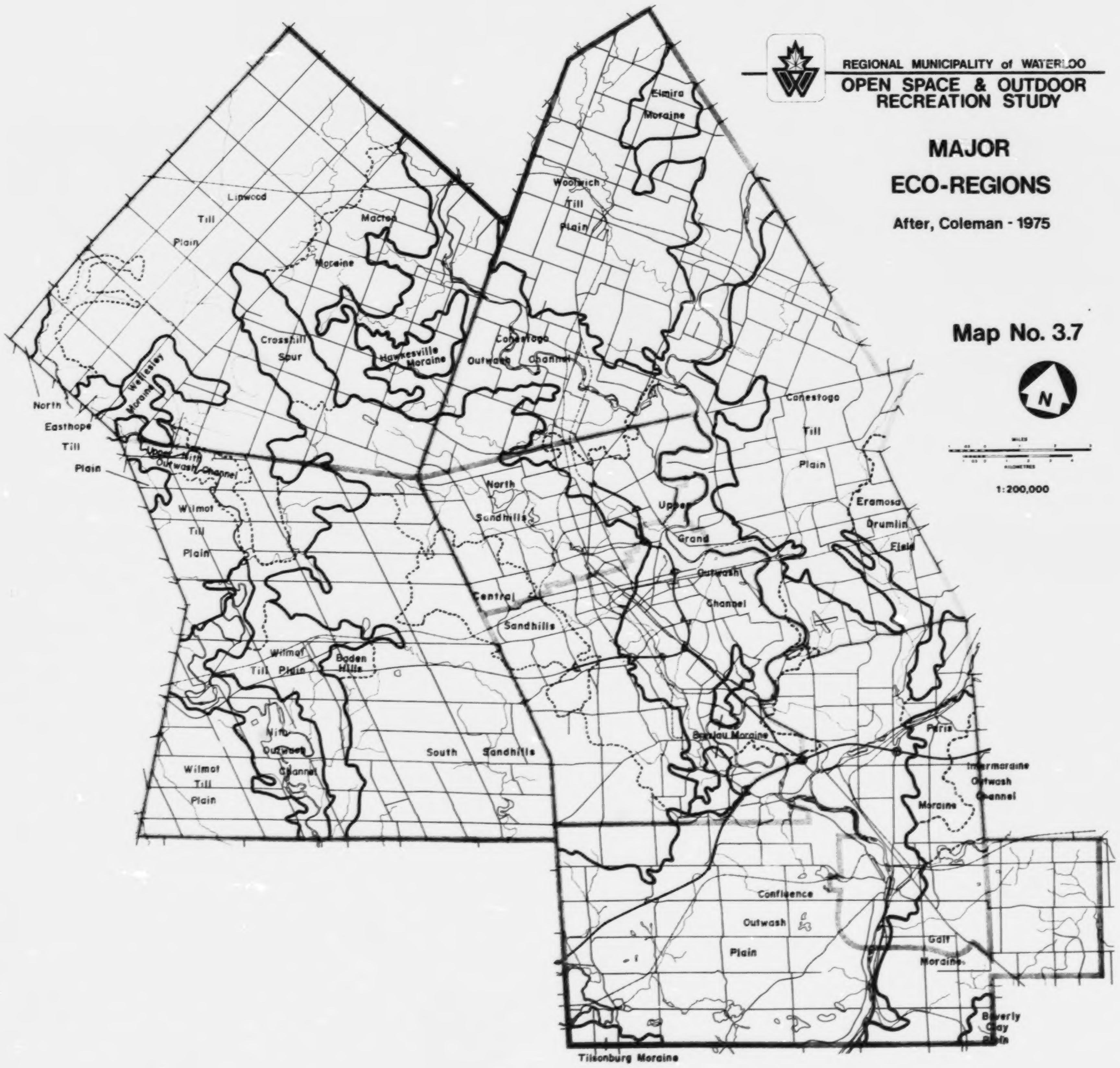
OPEN SPACE & OUTDOOR RECREATION STUDY

EXISTING FORESTED AREAS

After, Dryden and Smith

Map No. 3.6


N
MILES
1 0.5 0 1 2 3
1 0.5 0 1 2 3 4
KILOMETRES
1:200,000
THIS SECTION NOT INVENTORIED
█ Hardwood
█ Mixedwood
▭ Coniferous


Linwood
Till
Plain
Macton
Moraine
Crosshill
Spur
Hawkesville
Moraine
Wellesley
Moraine
North
Easthope
Till
Plain
Upper Nith
Outwash Channel
Wilmot
Till
Plain
Wilmot
Till Plain
Baden
Hills
Nith
Outwash
Channel
Wilmot
Till
Plain
South Sandhills
Elmira
Moraine
Woolwich
Till
Plain
Conestogo
Outwash Channel
North
Sandhills
Central
Sandhills
Upper
Grand
Outwash
Channel
Conestoga
Till
Plain
Eramosa
Drumlin
Field
Breslau Moraine
Paris
Intermoraine
Outwash
Channel
Moraine
Confluence
Outwash
Plain
Galt
Moraine
Beverly
Clay
Plain
Tilsonburg Moraine
N
MILES
KILOMETRES
1:200,000

REGIONAL MUNICIPALITY of WATERLOO
OPEN SPACE & OUTDOOR RECREATION STUDY

MAJOR ECO-REGIONS

After, Coleman - 1975

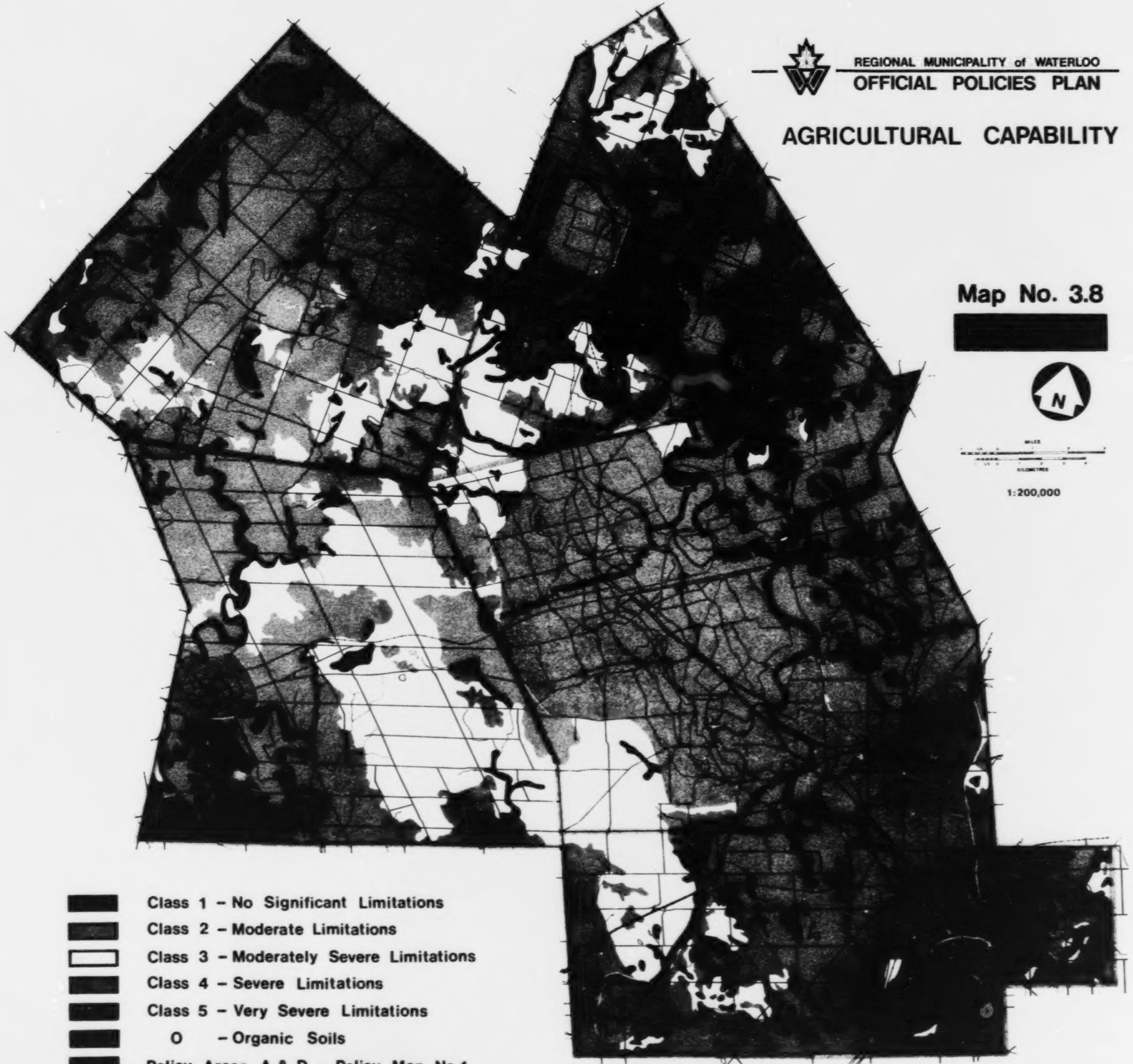
Map No. 3.7

REGIONAL MUNICIPALITY of WATERLOO

OFFICIAL POLICIES PLAN

AGRICULTURAL CAPABILITY

Map No. 3.8



■ Class 1 – No Significant Limitations

▨ Class 2 – Moderate Limitations

□ Class 3 – Moderately Severe Limitations

■ Class 4 – Severe Limitations

■ Class 5 – Very Severe Limitations

■ O – Organic Soils

■ Policy Areas A & D – Policy Map No.1

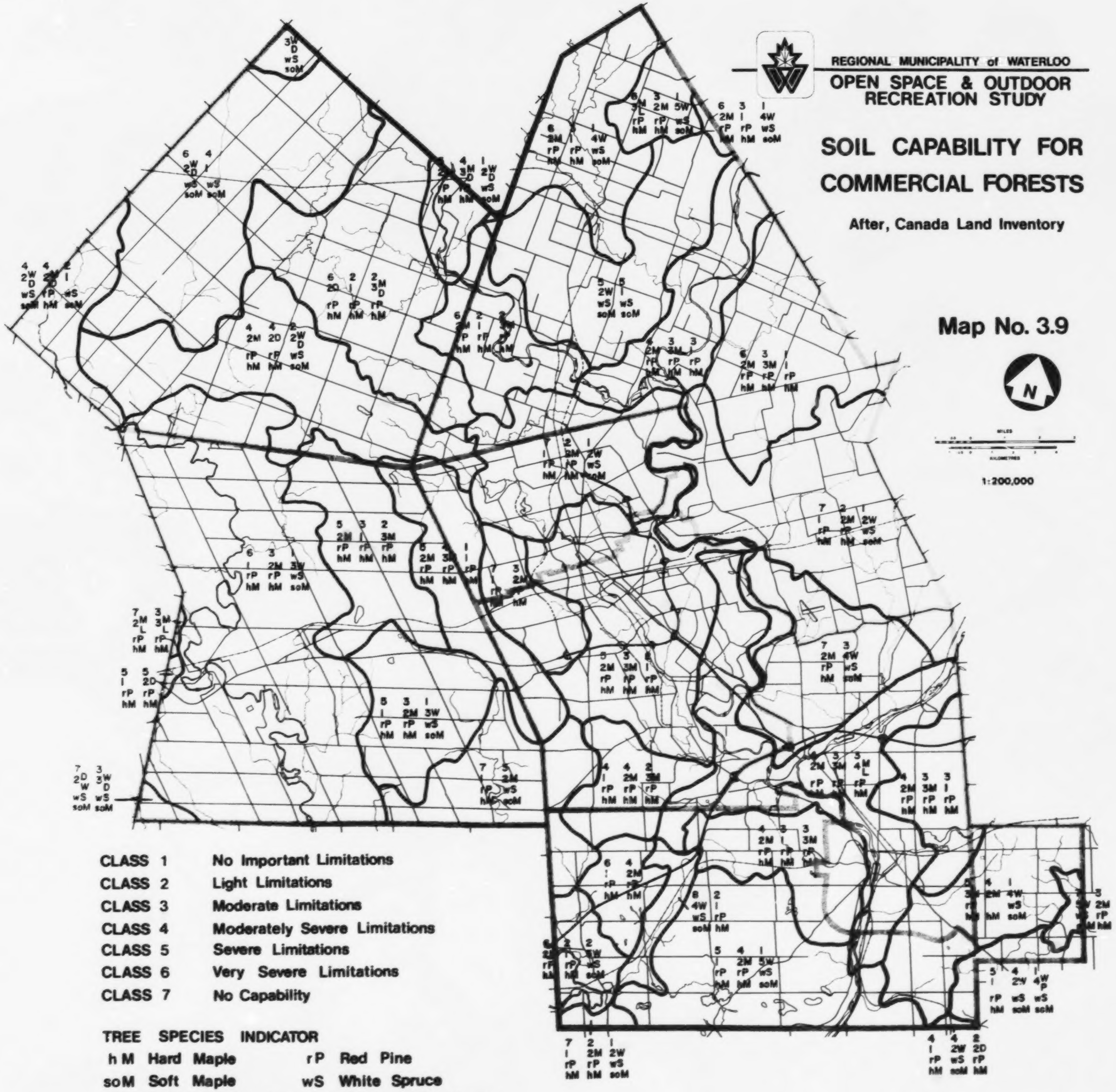
REGIONAL MUNICIPALITY of WATERLOO

OPEN SPACE & OUTDOOR RECREATION STUDY

SOIL CAPABILITY FOR COMMERCIAL FORESTS

After, Canada Land Inventory

Map No. 3.9



CLASS 1	No Important Limitations
CLASS 2	Light Limitations
CLASS 3	Moderate Limitations
CLASS 4	Moderately Severe Limitations
CLASS 5	Severe Limitations
CLASS 6	Very Severe Limitations
CLASS 7	No Capability

TREE SPECIES INDICATOR

hM	Hard Maple	rP	Red Pine
soM	Soft Maple	wS	White Spruce

See page following for explanation of sub-classes

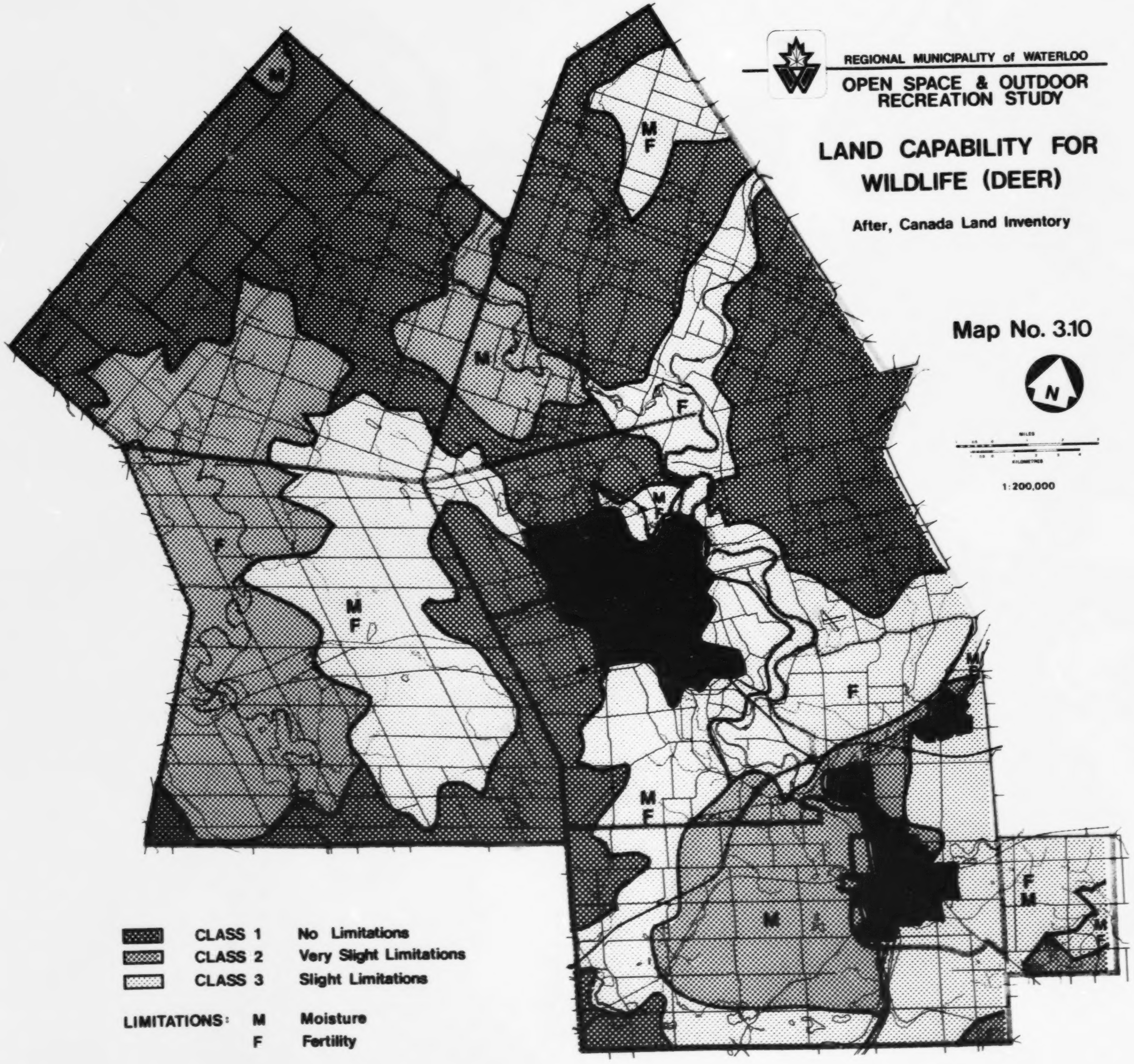
REGIONAL MUNICIPALITY of WATERLOO

OPEN SPACE & OUTDOOR RECREATION STUDY

LAND CAPABILITY FOR WILDLIFE (DEER)

After, Canada Land Inventory

Map No. 3.10


N
MILES
KILOMETRES
1:200,000
M
M F
M
F
M
M F
F
M F
F
M F
M
F M
M F
CLASS 1 No Limitations
CLASS 2 Very Slight Limitations
CLASS 3 Slight Limitations
LIMITATIONS: M Moisture
F Fertility

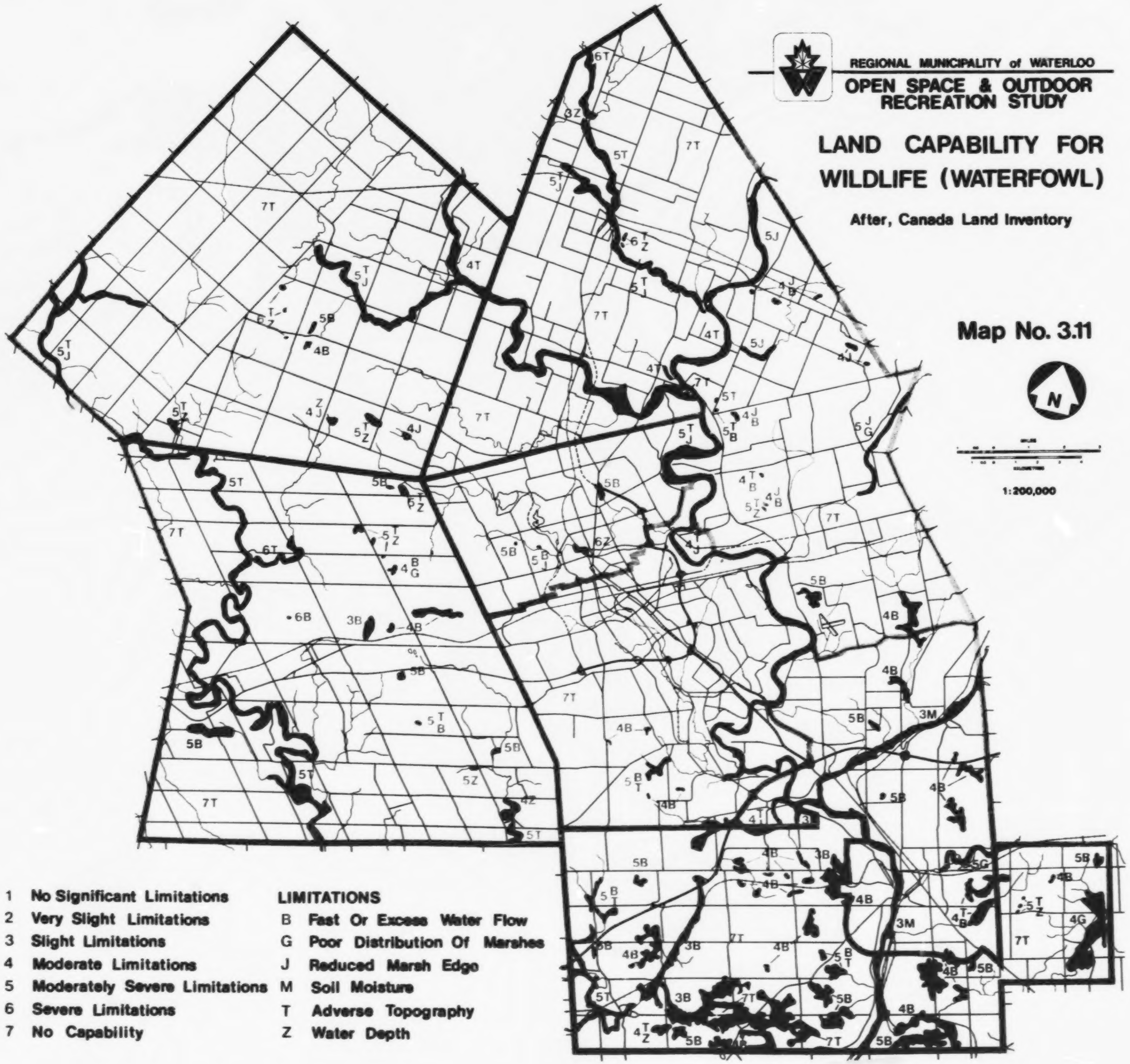
REGIONAL MUNICIPALITY of WATERLOO

OPEN SPACE & OUTDOOR RECREATION STUDY

LAND CAPABILITY FOR WILDLIFE (WATERFOWL)

After, Canada Land Inventory

Map No. 3.11


N
1:200,000
7T
6T
3Z
5T
5J
4T
6Z
4B
4J
5B
5G
6B
3B
5Z
4Z
4G
3M
3Z
7T
5B
4B

CLASS 1 No Significant Limitations
CLASS 2 Very Slight Limitations
CLASS 3 Slight Limitations
CLASS 4 Moderate Limitations
CLASS 5 Moderately Severe Limitations
CLASS 6 Severe Limitations
CLASS 7 No Capability

LIMITATIONS
B Fast Or Excess Water Flow
G Poor Distribution Of Marshes
J Reduced Marsh Edge
M Soil Moisture
T Adverse Topography
Z Water Depth

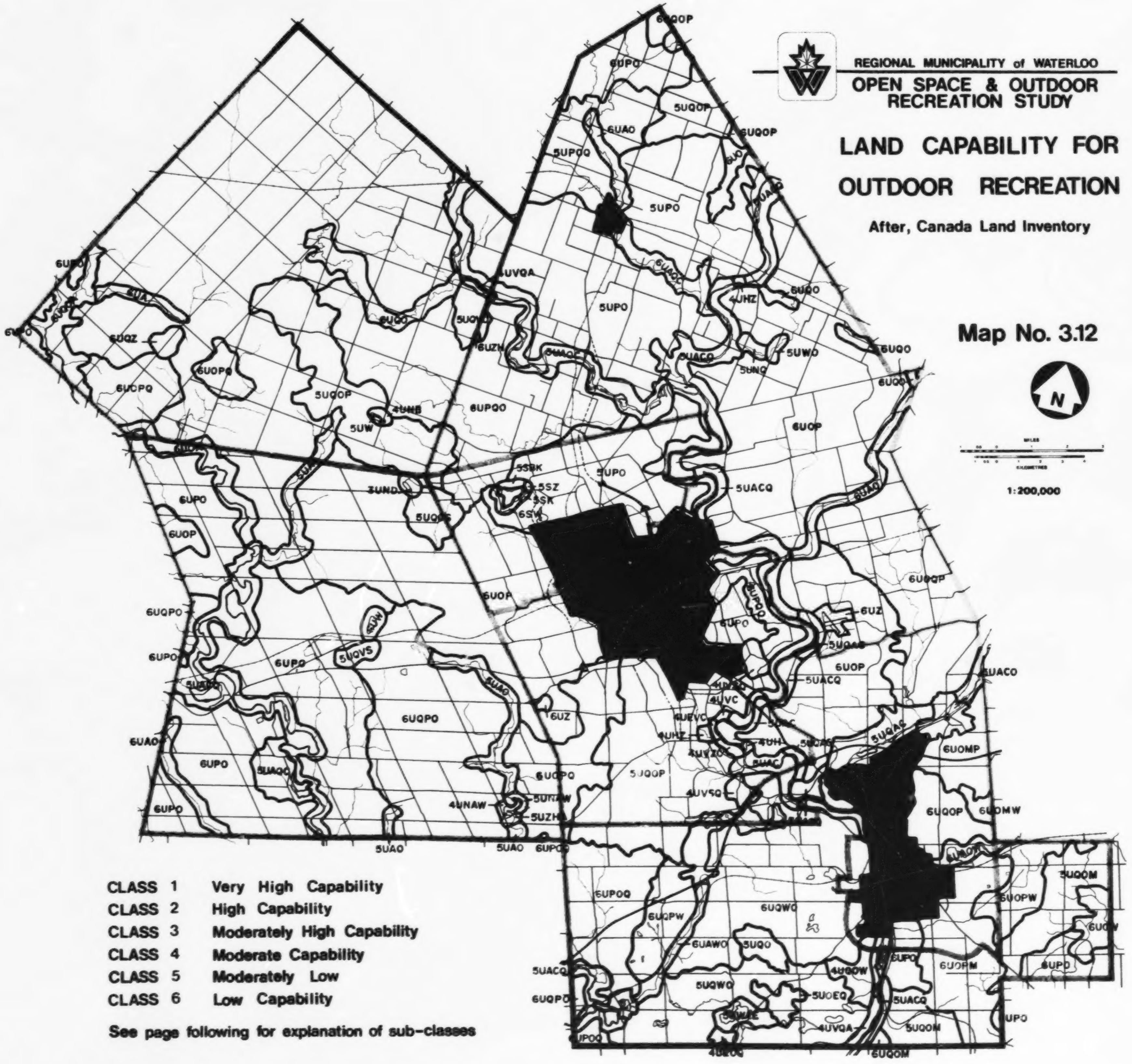
REGIONAL MUNICIPALITY of WATERLOO

OPEN SPACE & OUTDOOR RECREATION STUDY

LAND CAPABILITY FOR OUTDOOR RECREATION

After, Canada Land Inventory

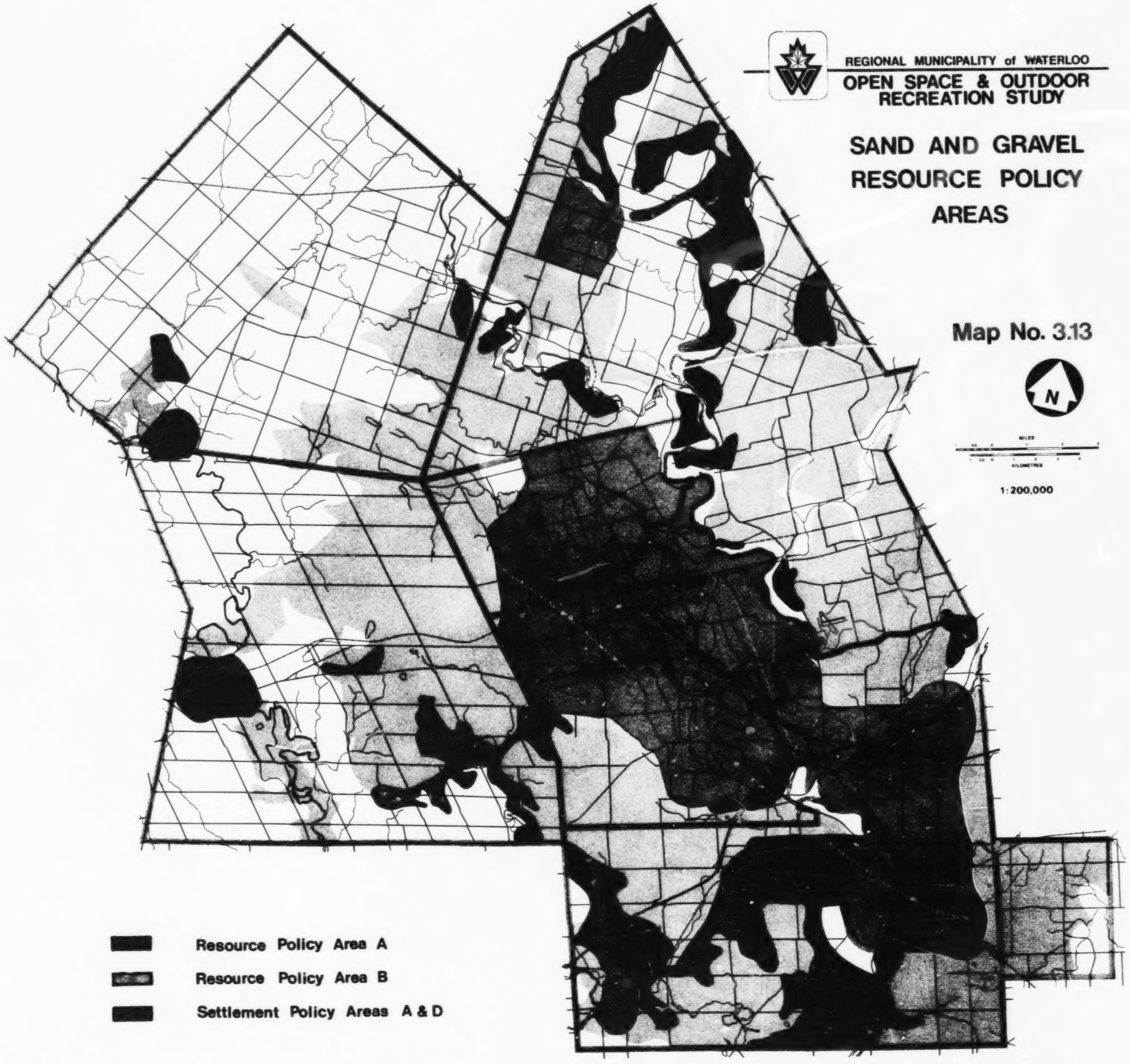
Map No. 3.12

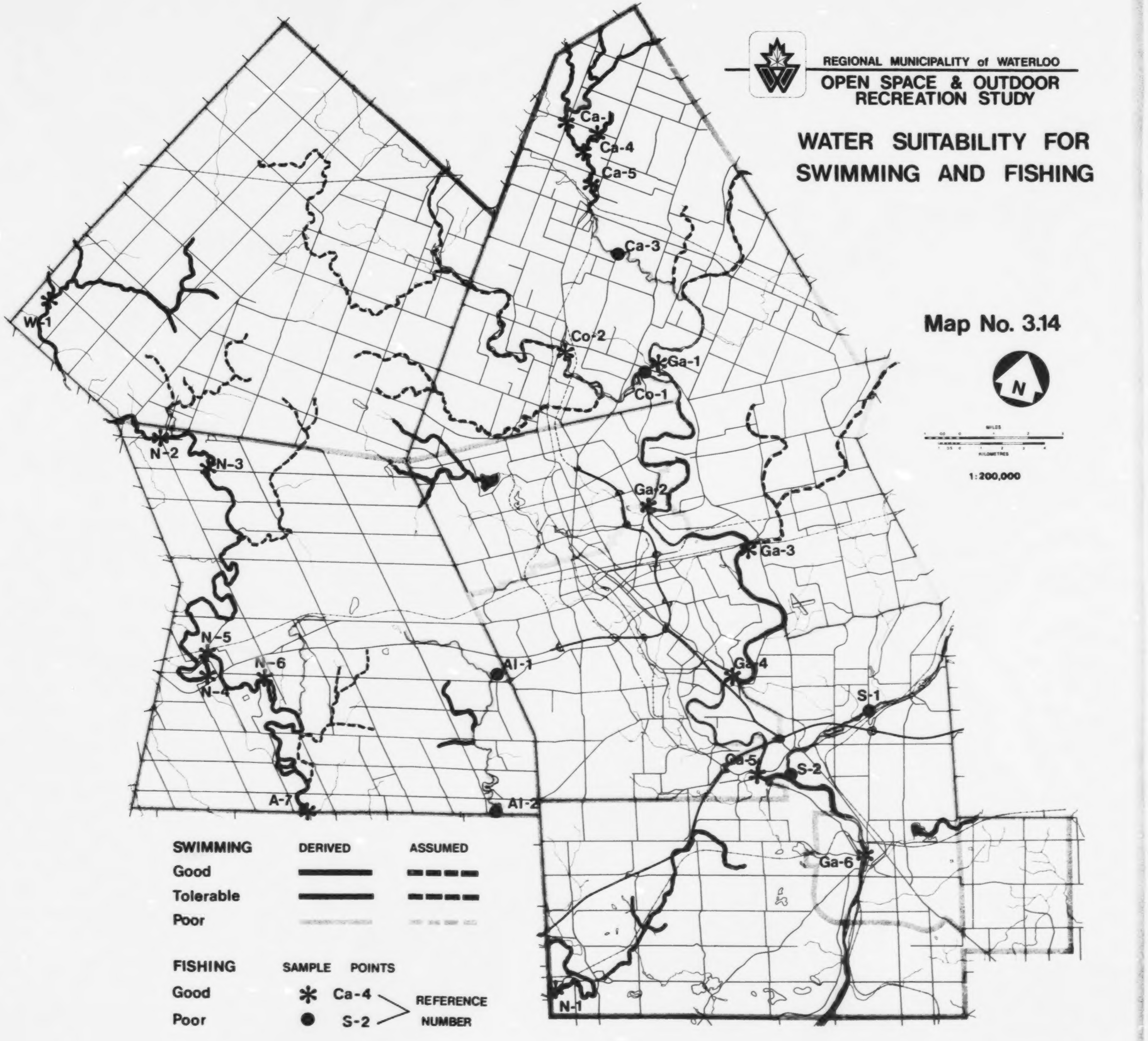


N
MILES
KILOMETRES
1:200,000
6UQOP
6UPQ
5UQOP
6UAO
5UQOP
5UPQQ
5UPO
5UVQA
5UPO
4UHZ
6UQO
5UWO
5UNQ
6UQO
6UQO
6UQP
5UPQ
6UPQ
6UQZ
5UAQ
6UPQ
6UQPQ
6UQPQ
5UQOP
4UNB
5UW
6UPQO
5SSK
5SZ
5SK
6SW
3UNDO
5UQQS
5UPO
5UACQ
6UPO
6UOP
5UOP
6UQQP
6UZ
5UPO
5UQAO
6UQPO
6UPO
6UPQ
5UQVS
5UAO
6UOP
5UACQ
5UACO
4UVC
4UVC
4UHZ
4UH
6UZ
6UQPO
6UAO
6UPO
5UAQO
6UQPO
5UNAW
4UNAW
5UZH
5UQQP
4UVSQ
6UOMP
6UQOP
6UOMW
5UAO
5UAO
6UPO
5UQOM
6UPOQ
5UOPW
6UQPW
6UQWQ
6UQW
5UAWO
5UQO
5UPO
6UQPM
5UPO
5UACQ
4UQOW
6UQPO
5UQWQ
5UOEQ
5UACQ
5UAE
4UVQA
5UQOM
UPO
6UPO
4UZQ
6UQOM

CLASS 1	Very High Capability	
CLASS 2	High Capability	
CLASS 3	Moderately High Capability	
CLASS 4	Moderate Capability	
CLASS 5	Moderately Low	
CLASS 6	Low Capability	

See page following for explanation of sub-classes




W-1
N-2
N-3
N-5
N-6
N-4
A-7
Al-1
Al-2
Ca-1
Ca-4
Ca-5
Ca-3
Co-2
Ga-1
Co-1
Ga-2
Ga-3
Ga-4
S-1
Ga-5
S-2
Ga-6
N-1
N
1:200,000
SWIMMING
DERIVED
ASSUMED
Good
Tolerable
Poor
FISHING
SAMPLE POINTS
Good
Poor
Ca-4
S-2
REFERENCE NUMBER

REGIONAL MUNICIPALITY of WATERLOO

OPEN SPACE & OUTDOOR RECREATION STUDY

WATER SUITABILITY FOR SWIMMING AND FISHING

Map No. 3.14

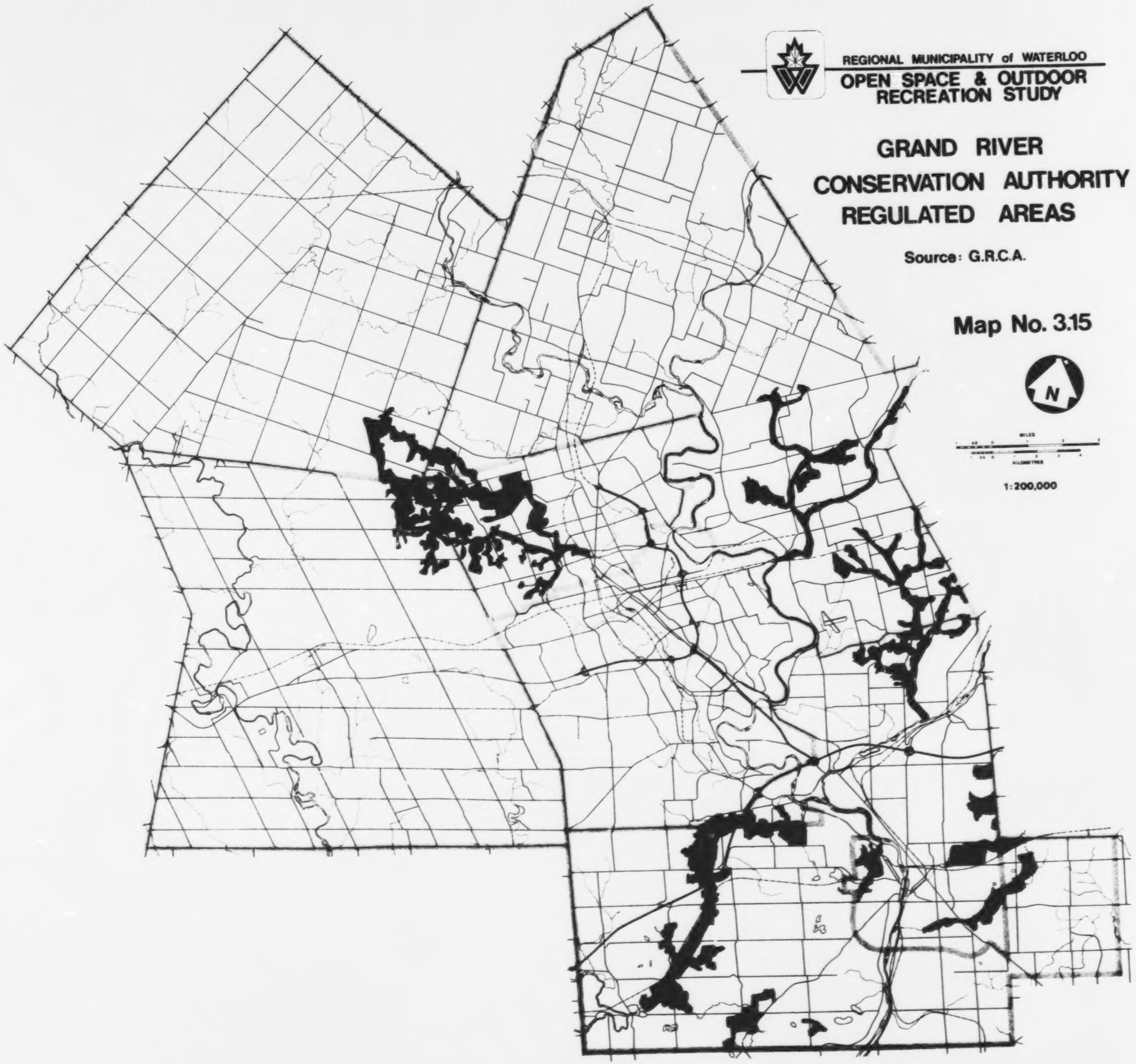
REGIONAL MUNICIPALITY of WATERLOO

OPEN SPACE & OUTDOOR RECREATION STUDY

GRAND RIVER CONSERVATION AUTHORITY REGULATED AREAS

Source: G.R.C.A.

Map No. 3.15


N
MILES
1 0.5 0 1 2 3
KILOMETRES
1 0.5 0 1 2 3 4
1:200,000

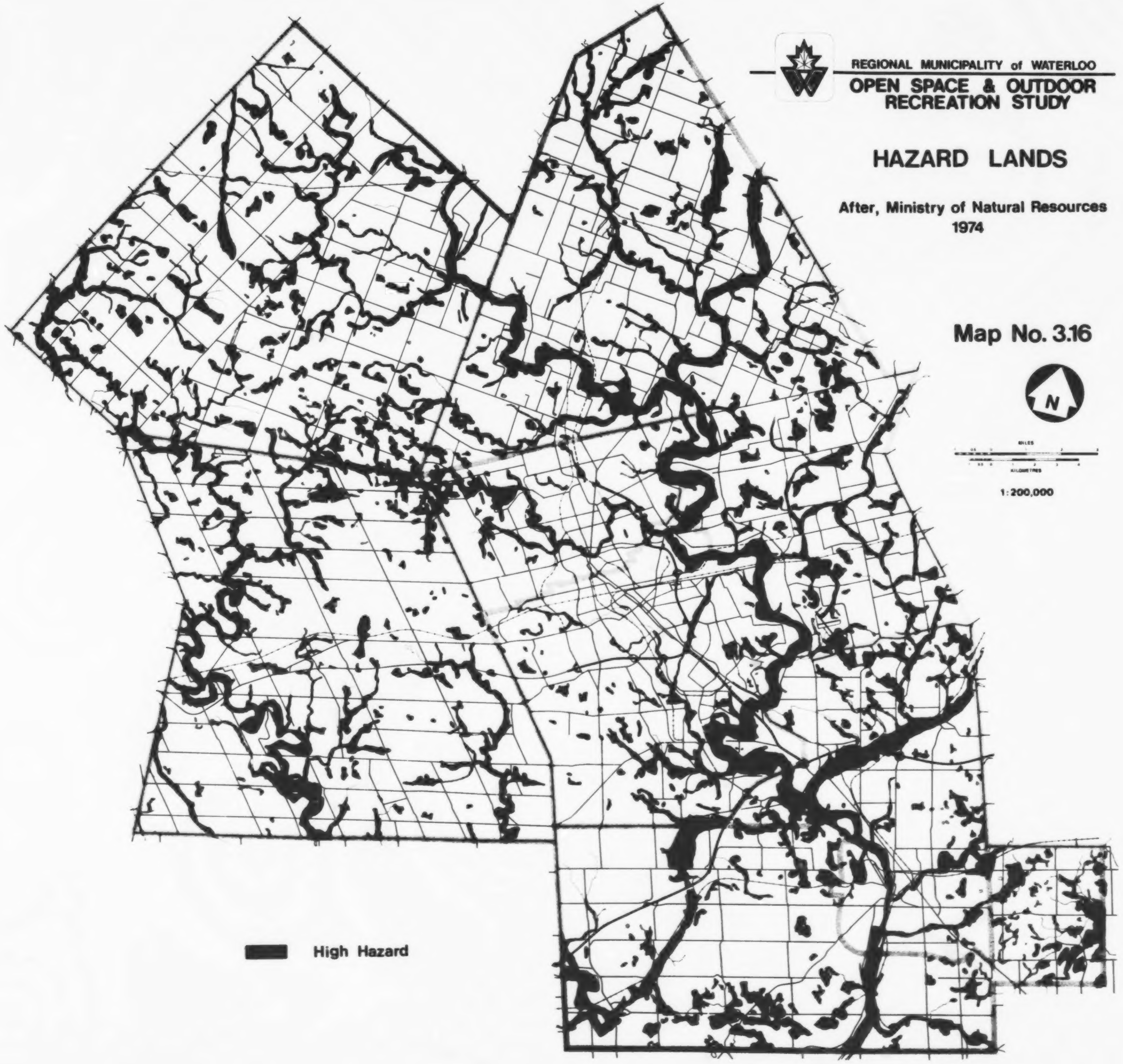
REGIONAL MUNICIPALITY of WATERLOO

OPEN SPACE & OUTDOOR RECREATION STUDY

HAZARD LANDS

After, Ministry of Natural Resources
1974

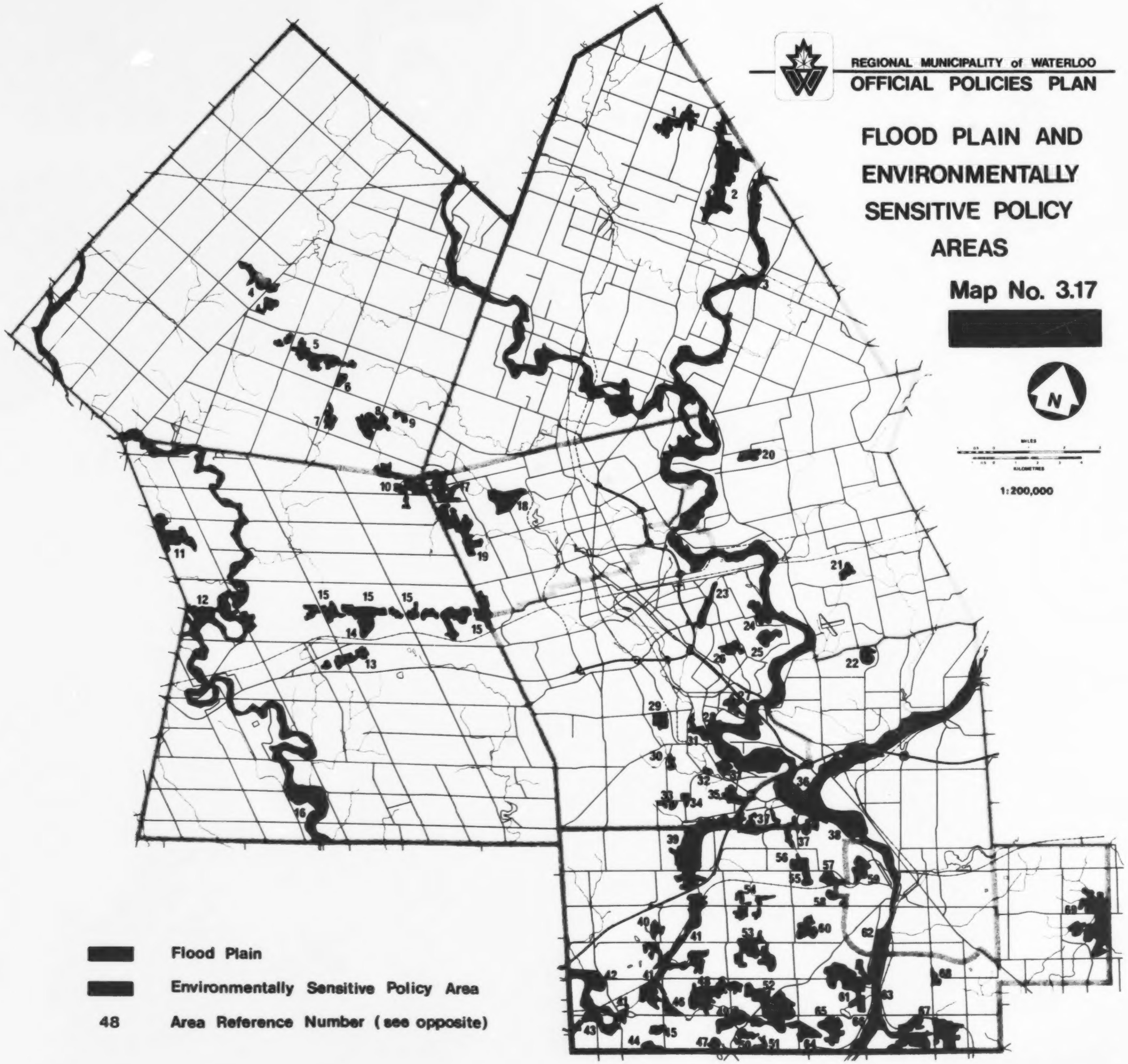
Map No. 3.16


N
MILES
1 0.5 0 1 2 3
1 0.5 0 1 2 3 4
KILOMETRES
1:200,000
High Hazard

REGIONAL MUNICIPALITY of WATERLOO
OFFICIAL POLICIES PLAN

FLOOD PLAIN AND ENVIRONMENTALLY SENSITIVE POLICY AREAS

Map No. 3.17


N
MILES
KILOMETRES
1
2
3
4
5
6
7
8
9
10
11
12
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14
15
16
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61
62
63
64
65
66
67
68
69

1:200,000

▬ Flood Plain

▬ Environmentally Sensitive Policy Area

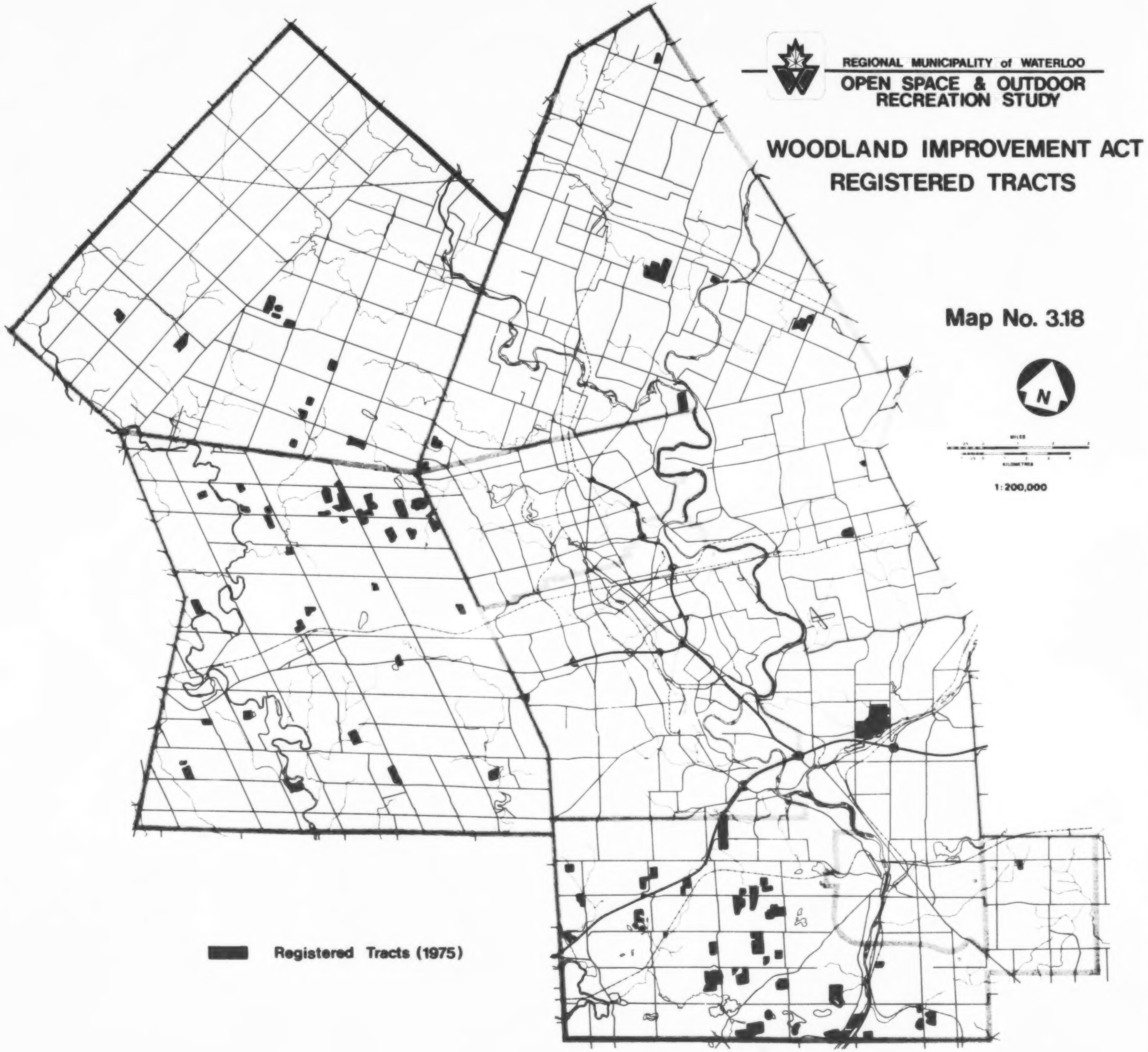
48 Area Reference Number (see opposite)

REGIONAL MUNICIPALITY of WATERLOO

OPEN SPACE & OUTDOOR RECREATION STUDY

WOODLAND IMPROVEMENT ACT REGISTERED TRACTS

Map No. 3.18


N
MILES
KILOMETRES
1:200,000

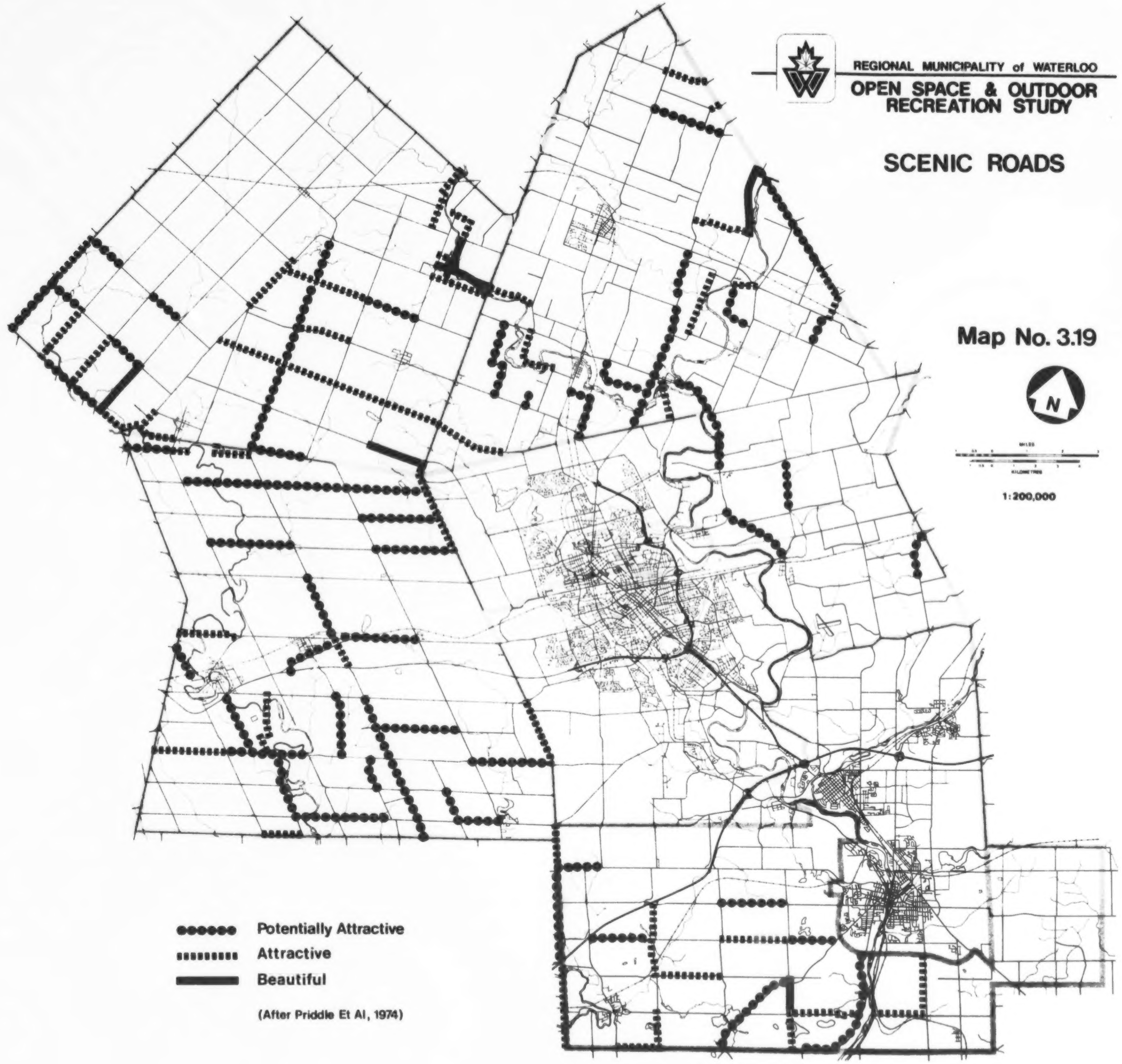
▬ Registered Tracts (1975)

REGIONAL MUNICIPALITY of WATERLOO

OPEN SPACE & OUTDOOR RECREATION STUDY

SCENIC ROADS

Map No. 3.19


N
MILES
KILOMETRES
1:200,000

●●●●●● Potentially Attractive

▮▮▮▮▮▮▮▮▮ Attractive

▬ Beautiful

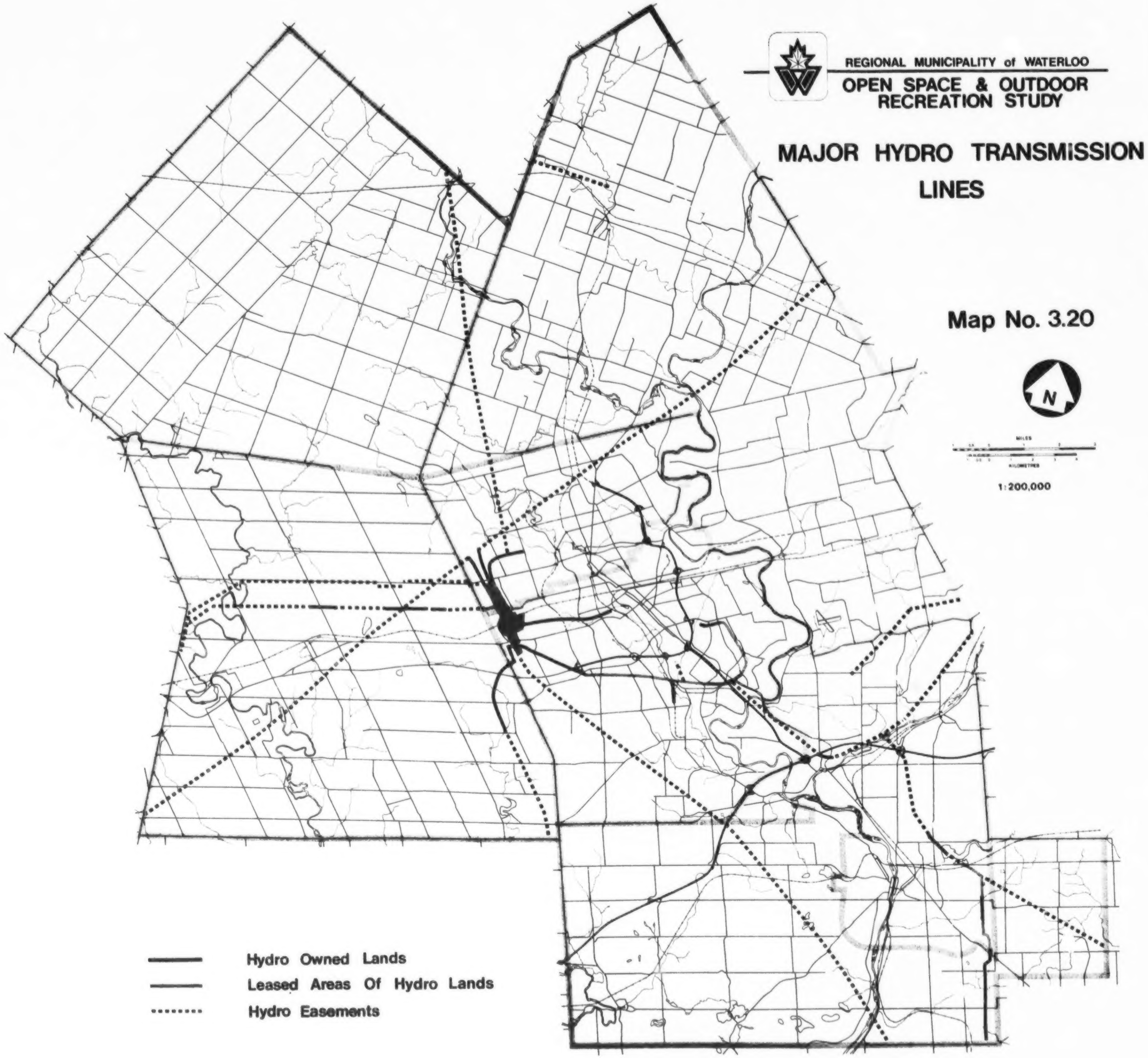
(After Priddle Et Al, 1974)

REGIONAL MUNICIPALITY of WATERLOO

OPEN SPACE & OUTDOOR RECREATION STUDY

MAJOR HYDRO TRANSMISSION LINES

Map No. 3.20

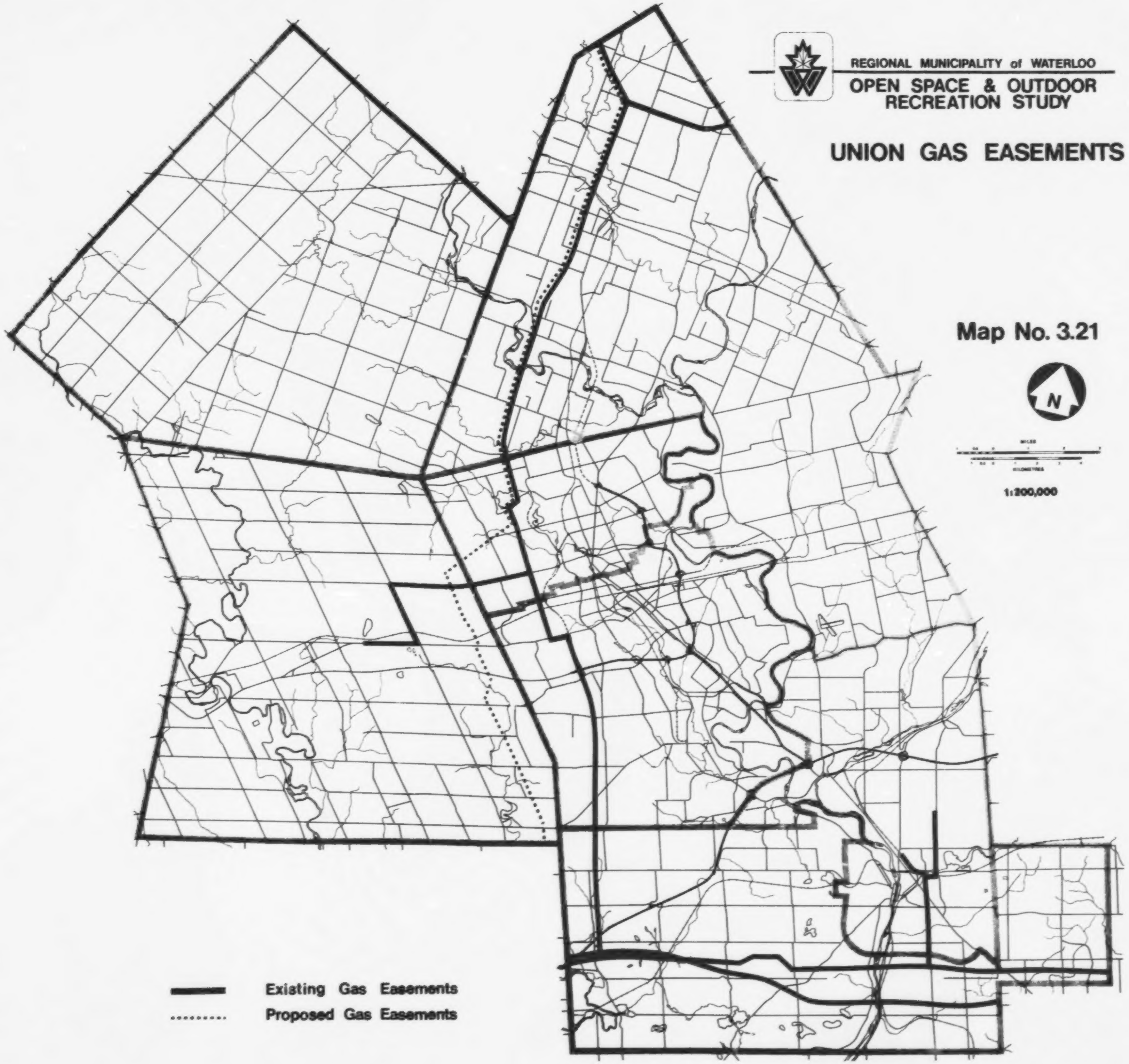

N
MILES
KILOMETRES
1:200,000
Hydro Owned Lands
Leased Areas Of Hydro Lands
Hydro Easements

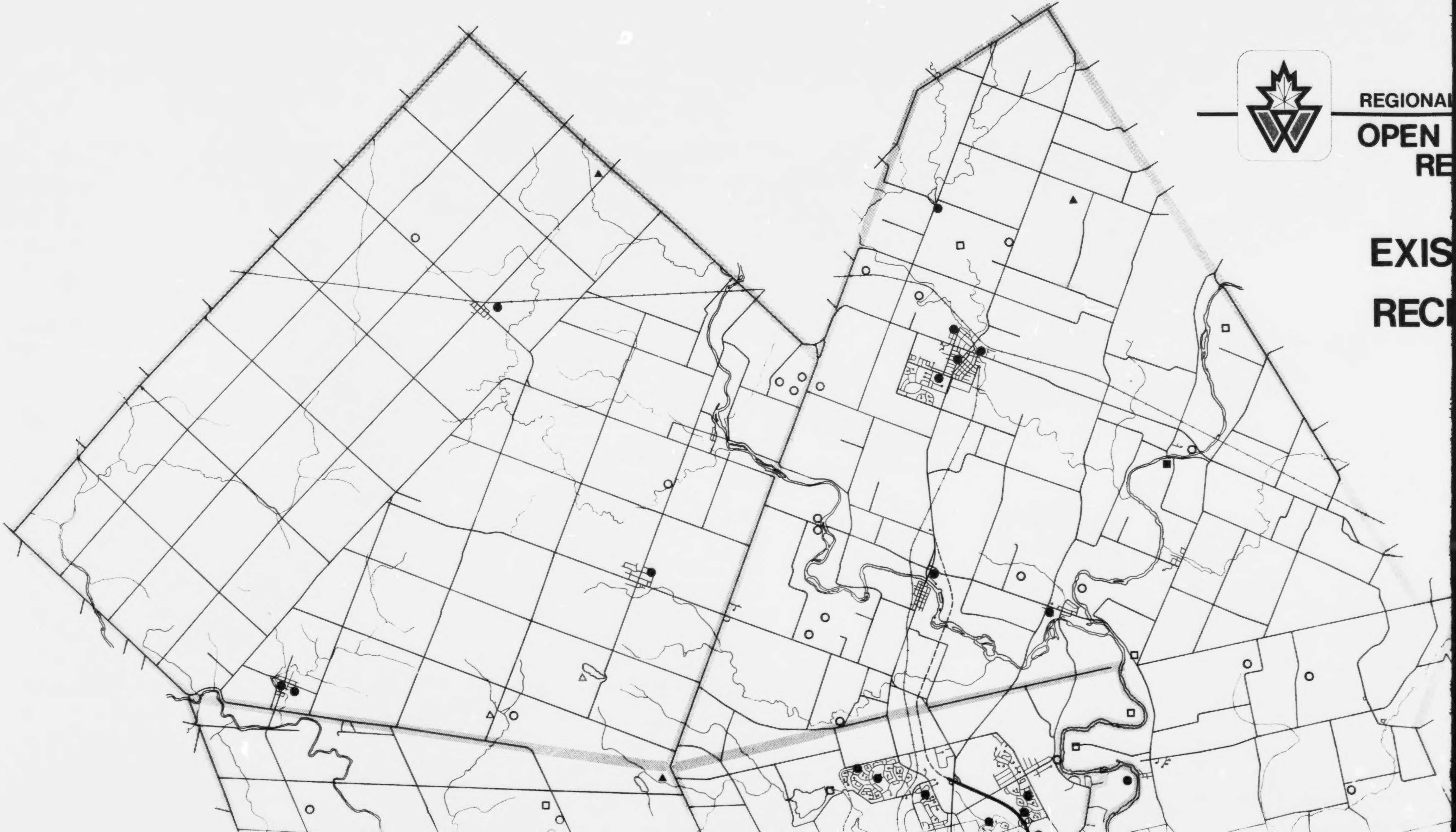
REGIONAL MUNICIPALITY of WATERLOO

OPEN SPACE & OUTDOOR RECREATION STUDY

UNION GAS EASEMENTS

Map No. 3.21


N
MILES
1 0.5 0 1 2 3
1 0.5 0 1 2 3 4
KILOMETRES
1:200,000
Existing Gas Easements
Proposed Gas Easements



REGIONAL

OPEN

RE

EXIS

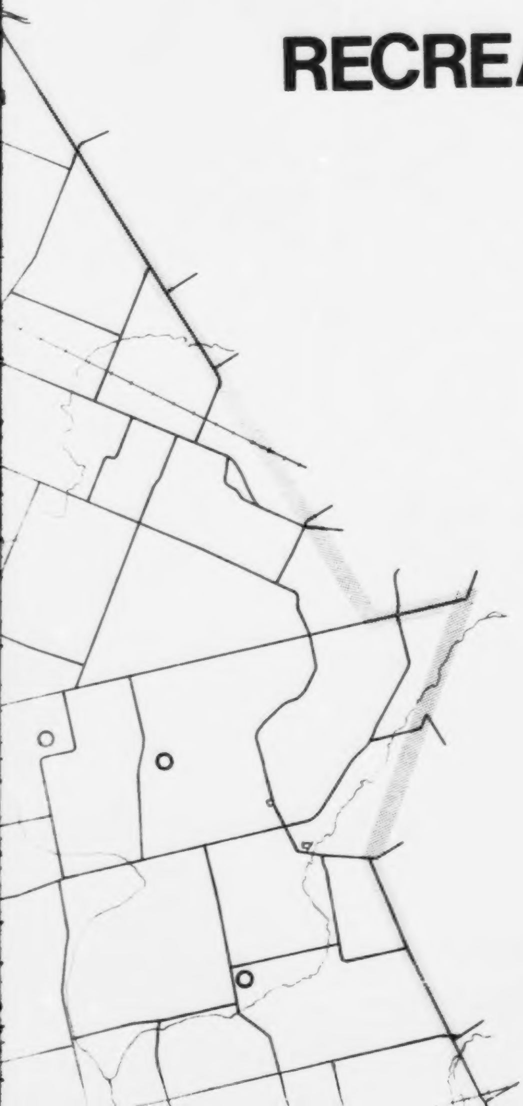
RECI

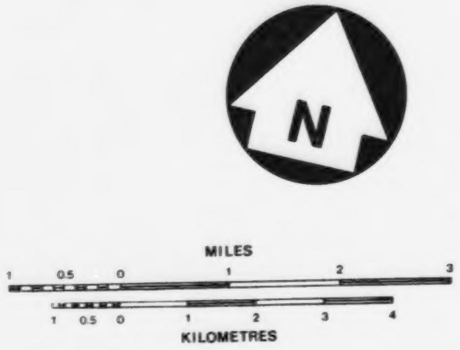
REGIONAL MUNICIPALITY of WATERLOO

OPEN SPACE & OUTDOOR RECREATION STUDY

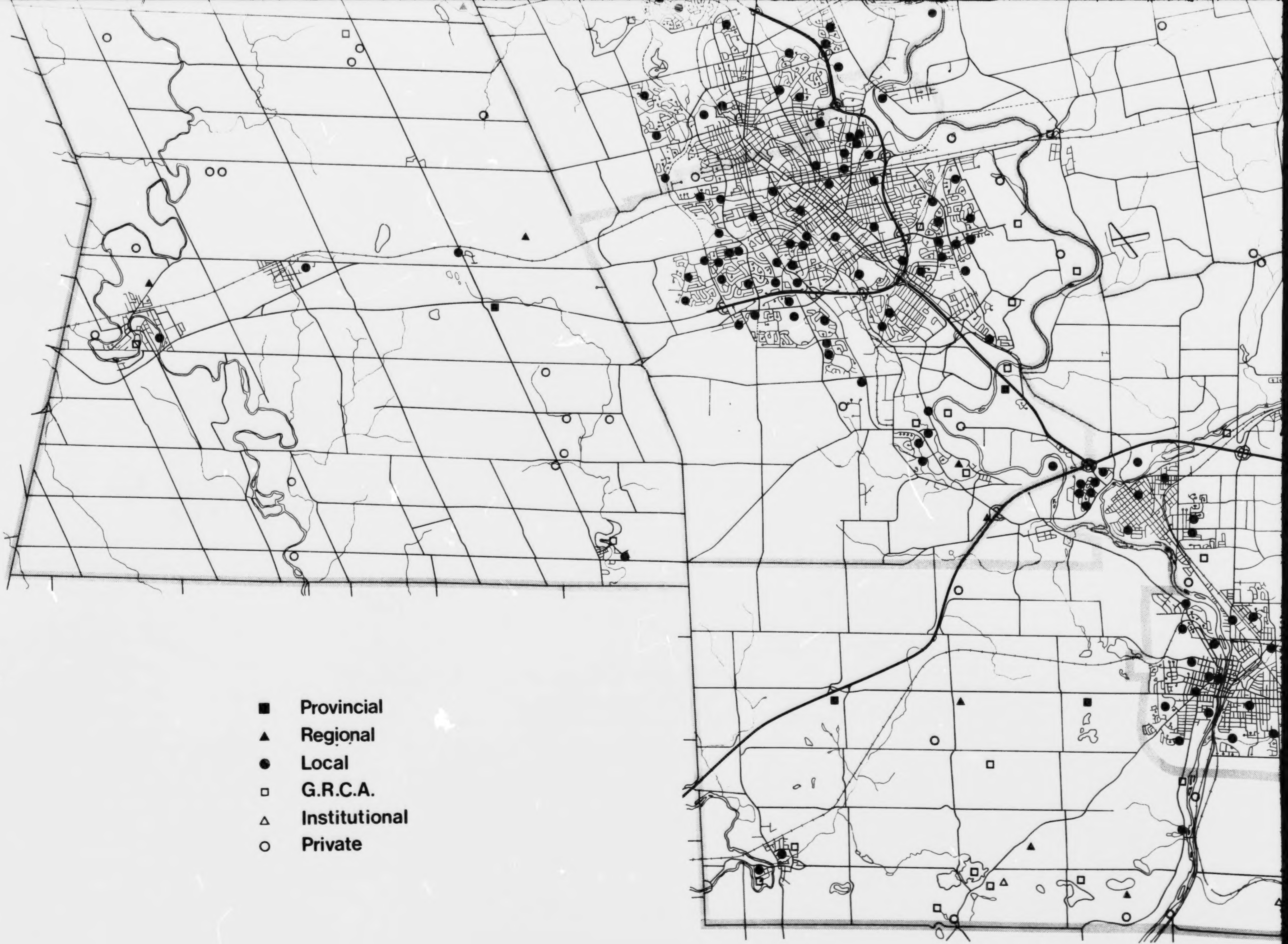
EXISTING OUTDOOR RECREATION AREAS

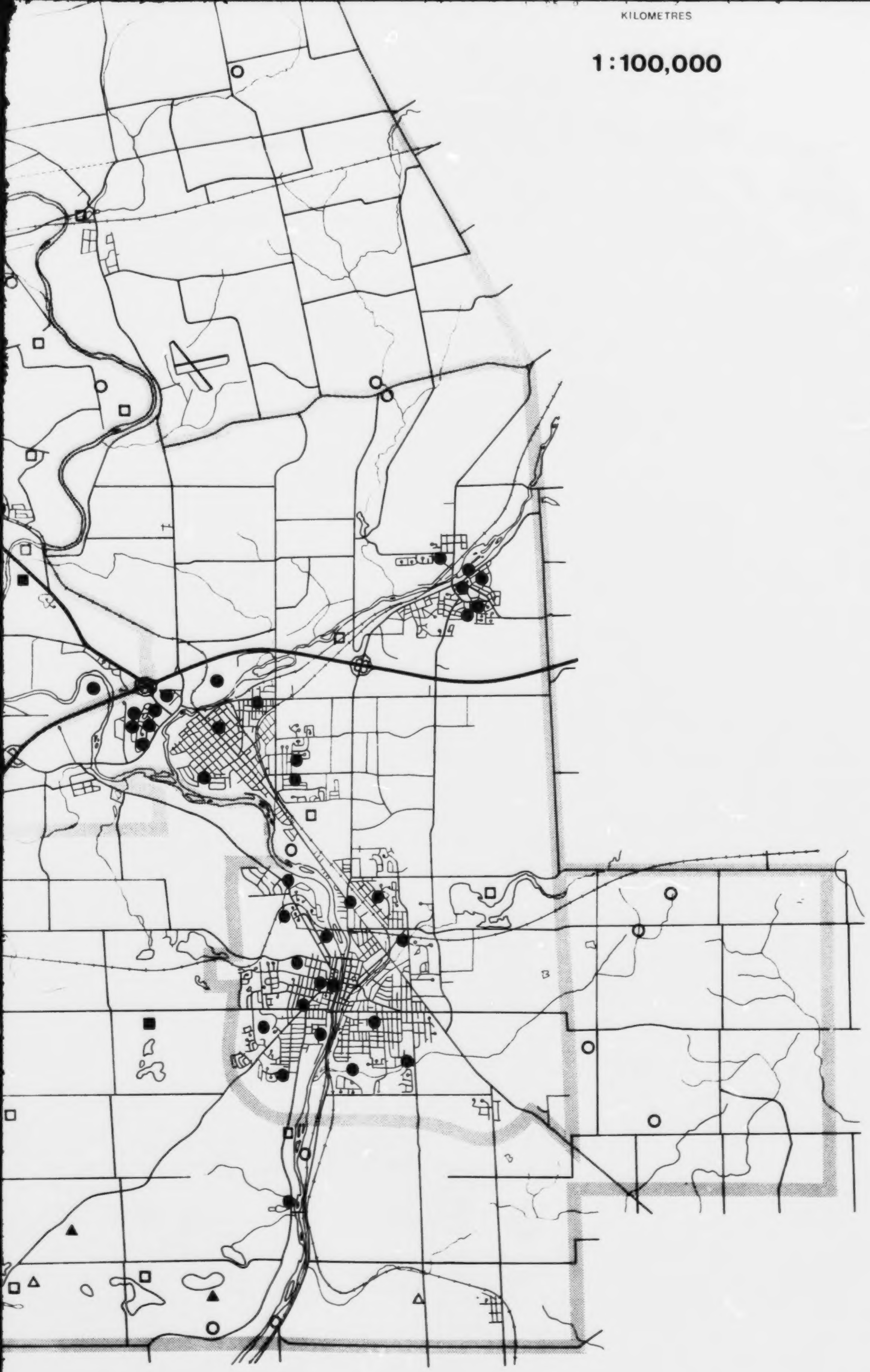
Map No. 3.22

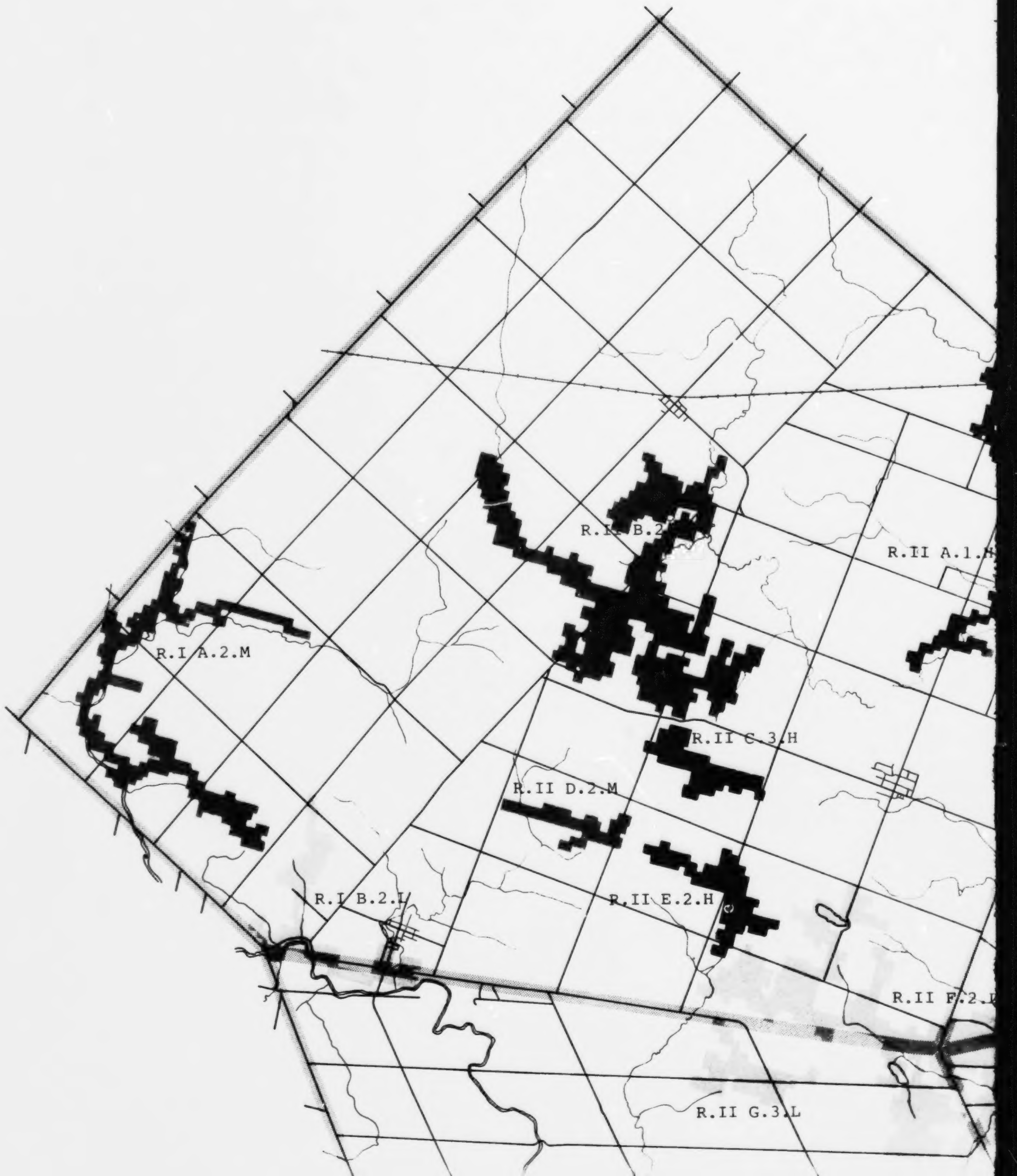



N
MILES
1
0.5
0
1
2
3
1
0.5
0
1
2
3
4
KILOMETRES

1:100,000


■ Provincial
▲ Regional
● Local
□ G.R.C.A.
△ Institutional
○ Private


KILOMETRES
1:100,000

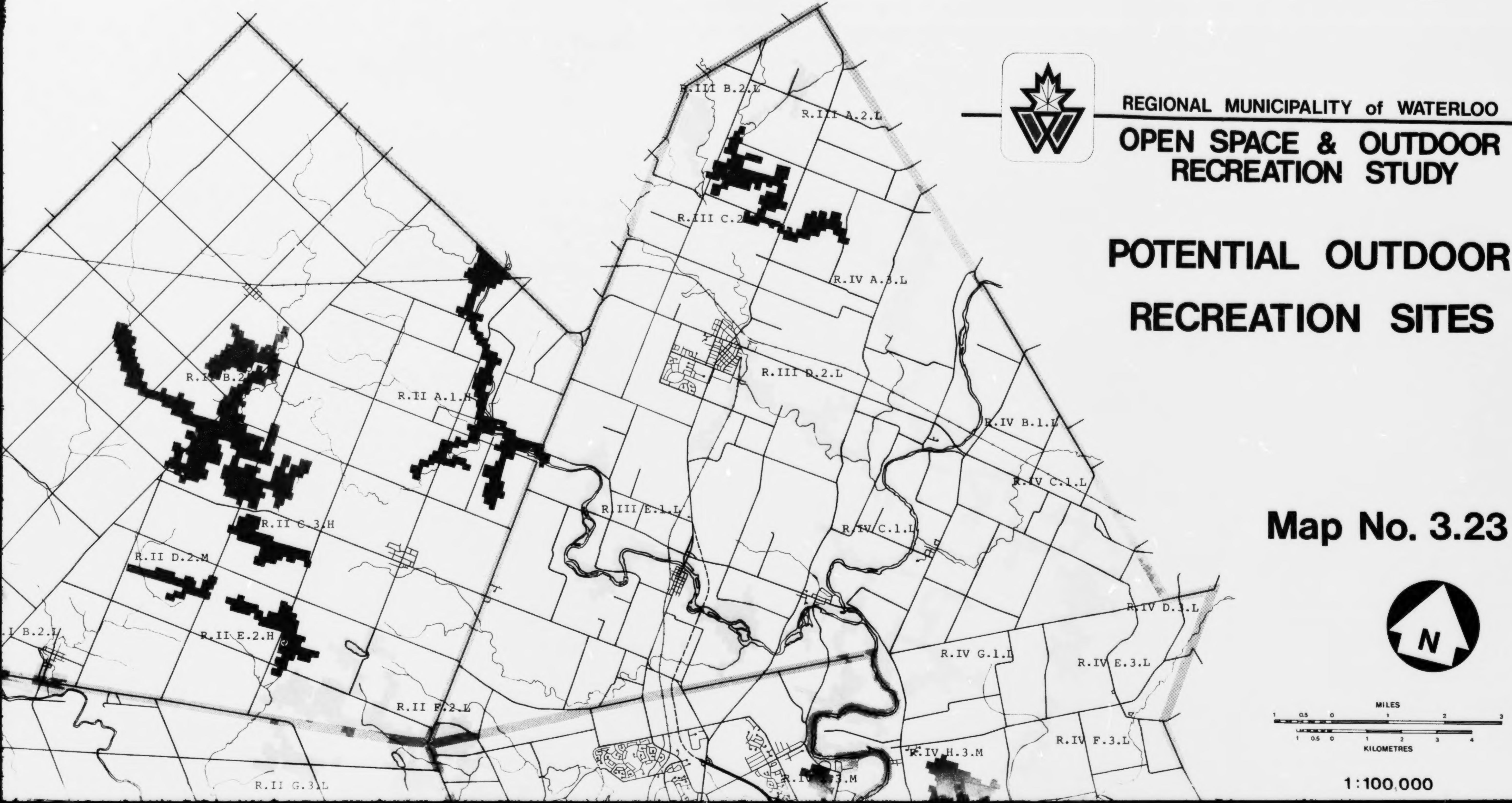

R.II B.2
R.II A.1.H
R.I A.2.M
R.II C.3.H
R.II D.2.M
R.I B.2.L
R.II E.2.H
R.II F.2.
R.II G.3.L

REGIONAL MUNICIPALITY of WATERLOO

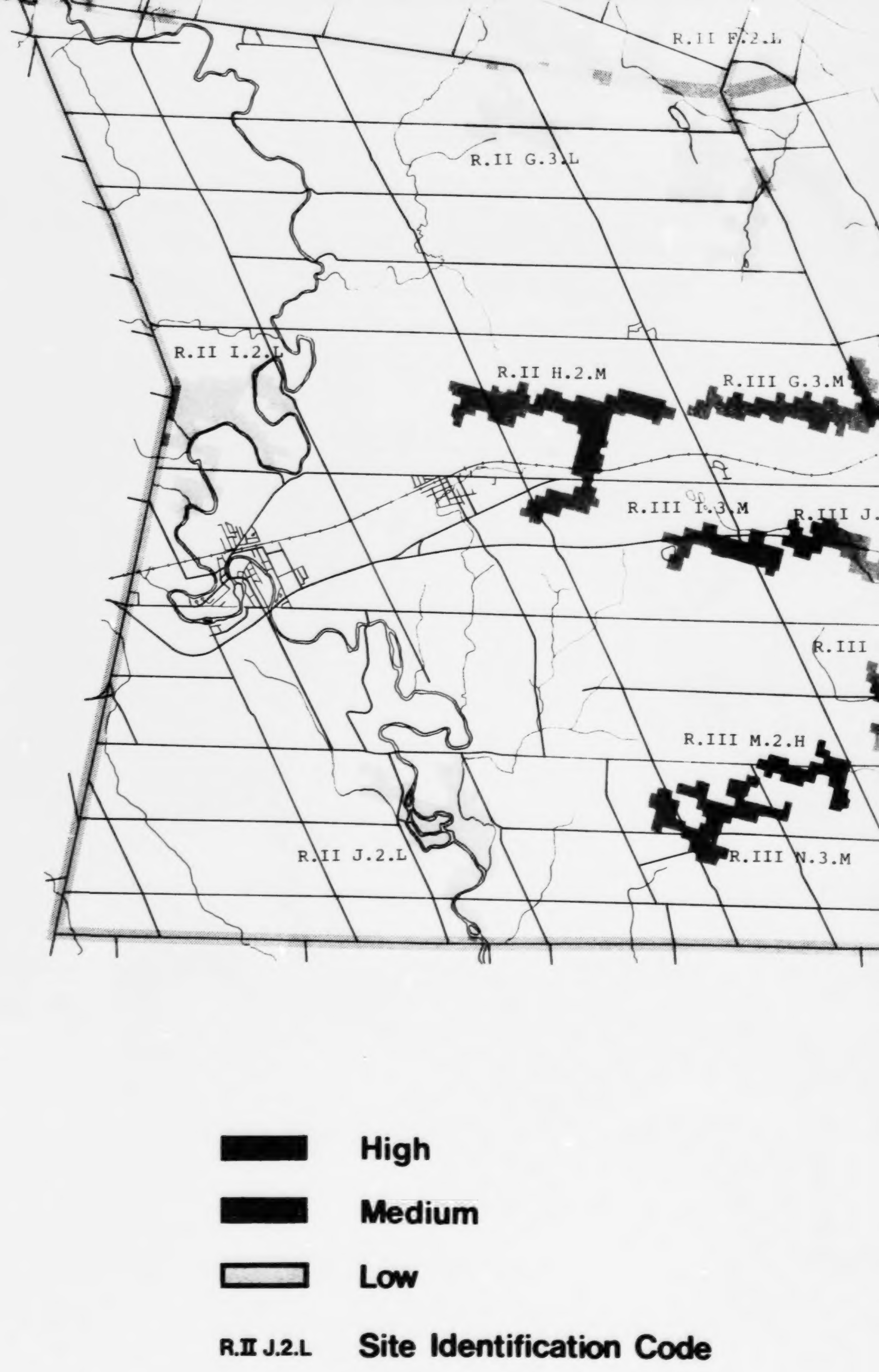
OPEN SPACE & OUTDOOR RECREATION STUDY

POTENTIAL OUTDOOR RECREATION SITES

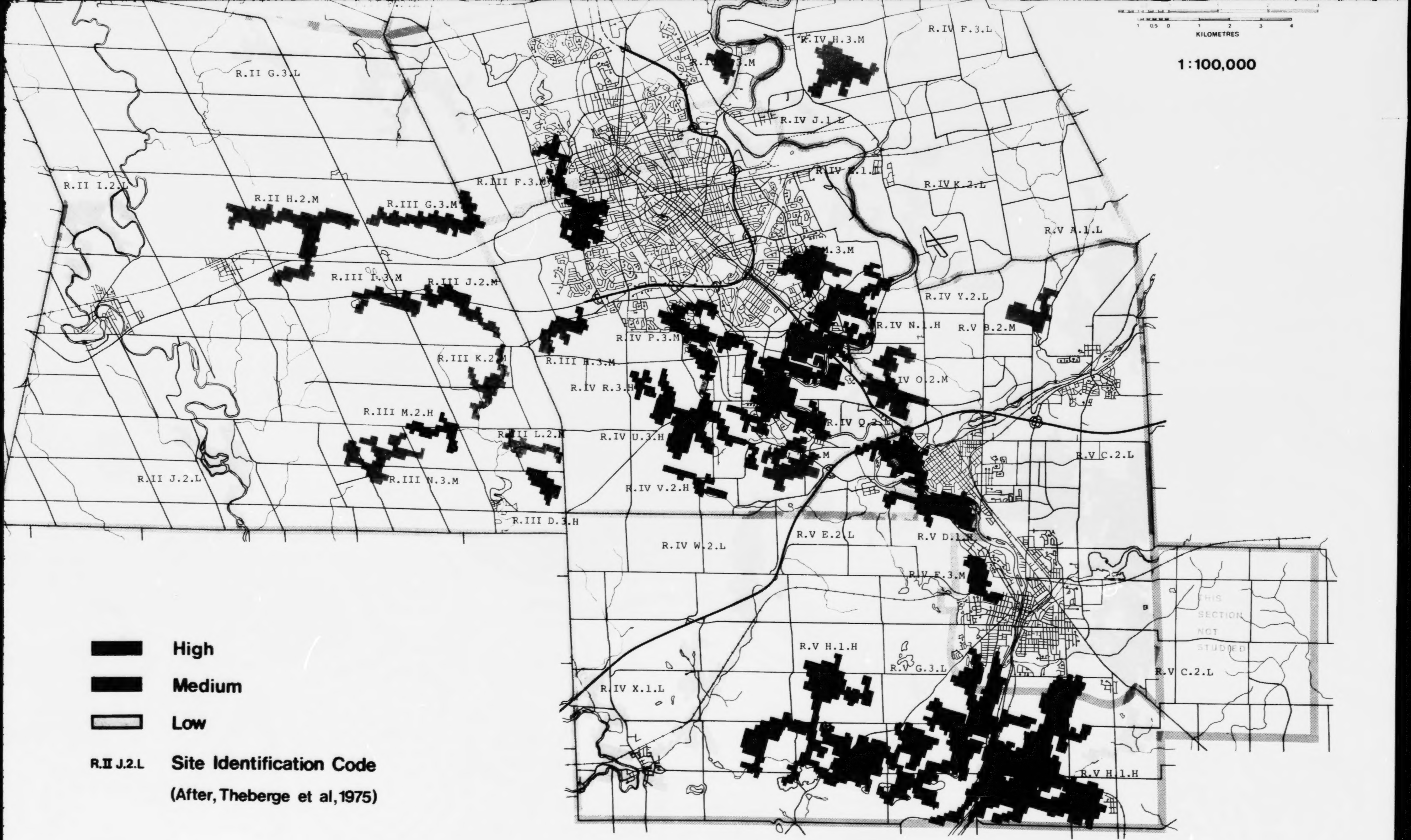
Map No. 3.23


R.III B.2.L
R.III A.2.L
R.III C.2
R.IV A.3.L
R.III D.2.L
R.II B.2
R.II A.1.H
R.IV B.1.L
R.IV C.1.L
R.III E.1.L
R.IV C.1.L
R.II C.3.H
R.II D.2.M
R.II E.2.H
I B.2.I
R.IV D.3.L
R.IV G.1.L
R.IV E.3.L
R.II F.2.L
R.IV F.3.L
R.IV H.3.M
R.IV .3.M
R.II G.3.L
N
MILES
1 0.5 0 1 2 3
1 0.5 0 1 2 3 4
KILOMETRES

1:100,000


R.II F.2.L
R.II G.3.L
R.II I.2.L
R.II H.2.M
R.III G.3.M
R.III I.3.M
R.III J.
R.III
R.III M.2.H
R.II J.2.L
R.III N.3.M
High
Medium
Low
R.II J.2.L
Site Identification Code

(After, Theberge et al, 1975)


1 0.5 0 1 2 3 4
KILOMETRES
1:100,000
R.IV F.3.L
R.IV H.3.M
3.M
R.II G.3.L
R.IV J.1.L
R.IV E.1.H
R.II I.2.L
R.II H.2.M
R.III F.3.M
R.III G.3.M
R.IV K.2.L
R.V A.1.L
M.3.M
R.III I.3.M
R.III J.2.M
R.IV Y.2.L
R.IV N.1.H
R.V B.2.M
R.IV P.3.M
R.III K.2.M
R.III H.3.M
IV O.2.M
R.IV R.3.H
R.III M.2.H
R.III L.2.M
R.IV U.3.H
R.IV Q.2
M
R.V C.2.L
R.II J.2.L
R.III N.3.M
R.IV V.2.H
R.III D.3.H
R.V E.2.L
R.V D.1.H
R.IV W.2.L
R.V F.3.M
THIS SECTION NOT STUDIED
R.V H.1.H
R.V G.3.L
R.V C.2.L
R.IV X.1.L
R.V H.1.H
High
Medium
Low
R.II J.2.L Site Identification Code

(After, Theberge et al, 1975)

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REGIONAL MUNICIPALITY of WATERLOO

OPEN SPACE & OUTDOOR RECREATION STUDY

OPEN SPACE STRATEGY MAP

Map No. 3.24

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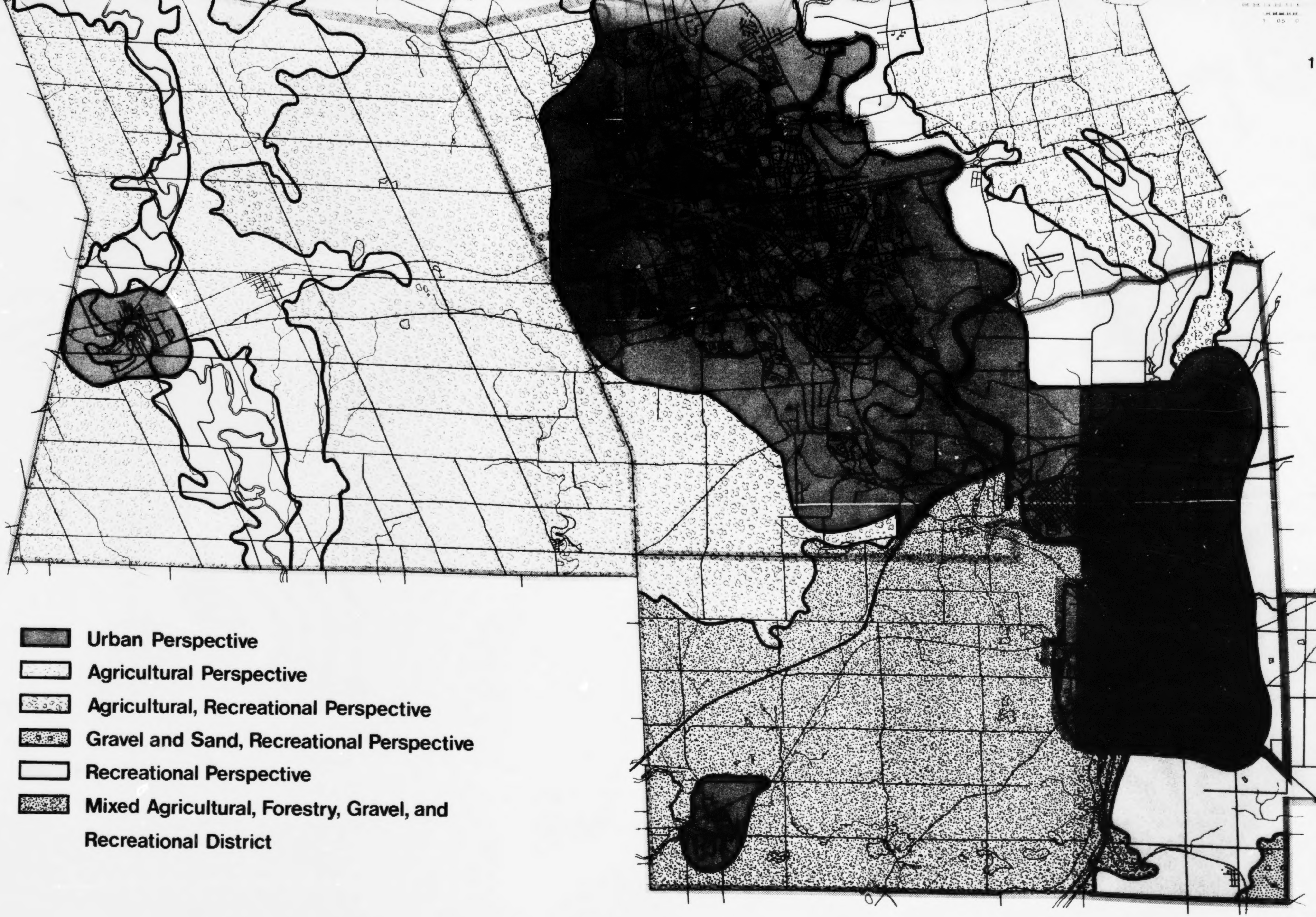
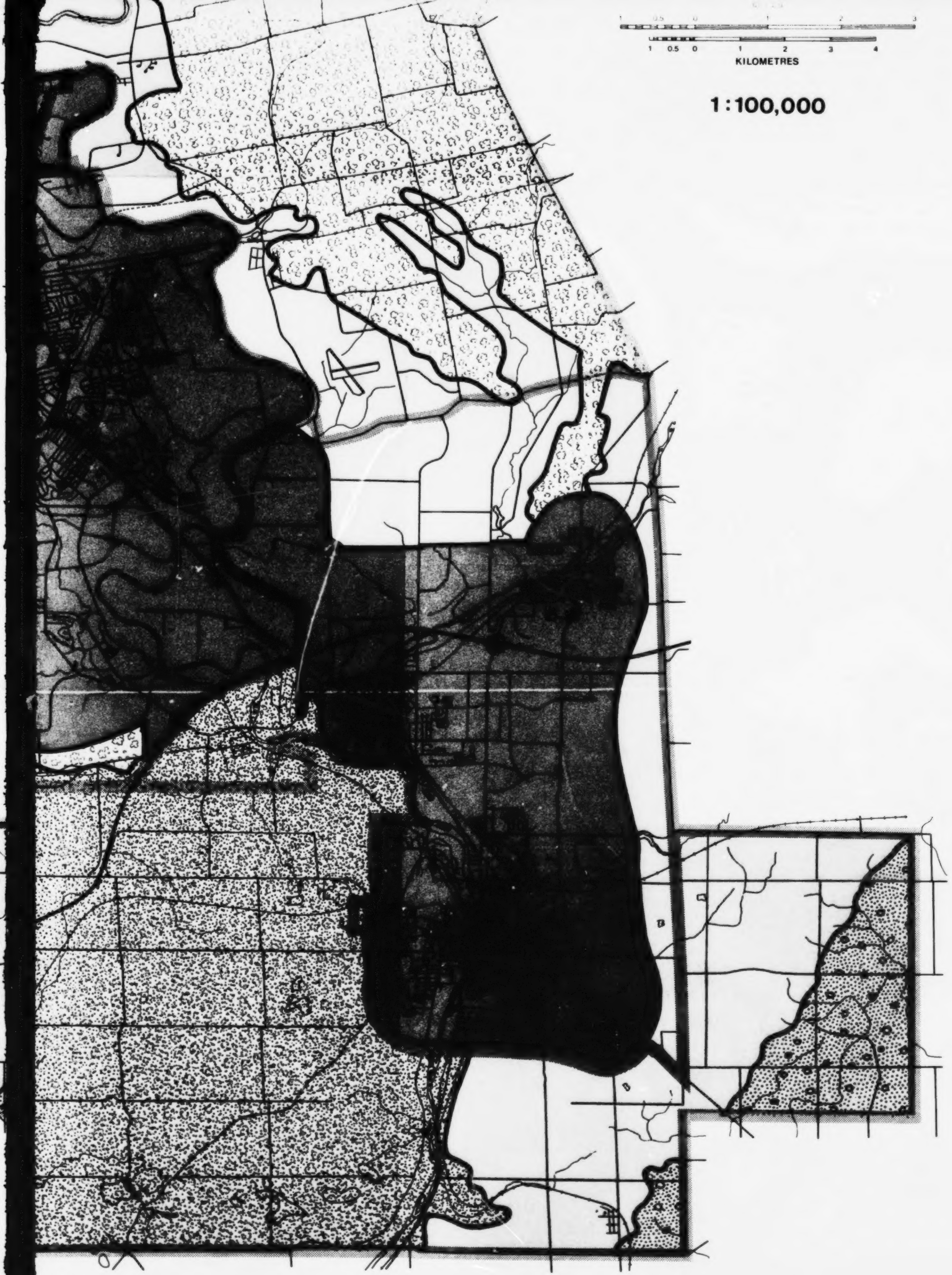
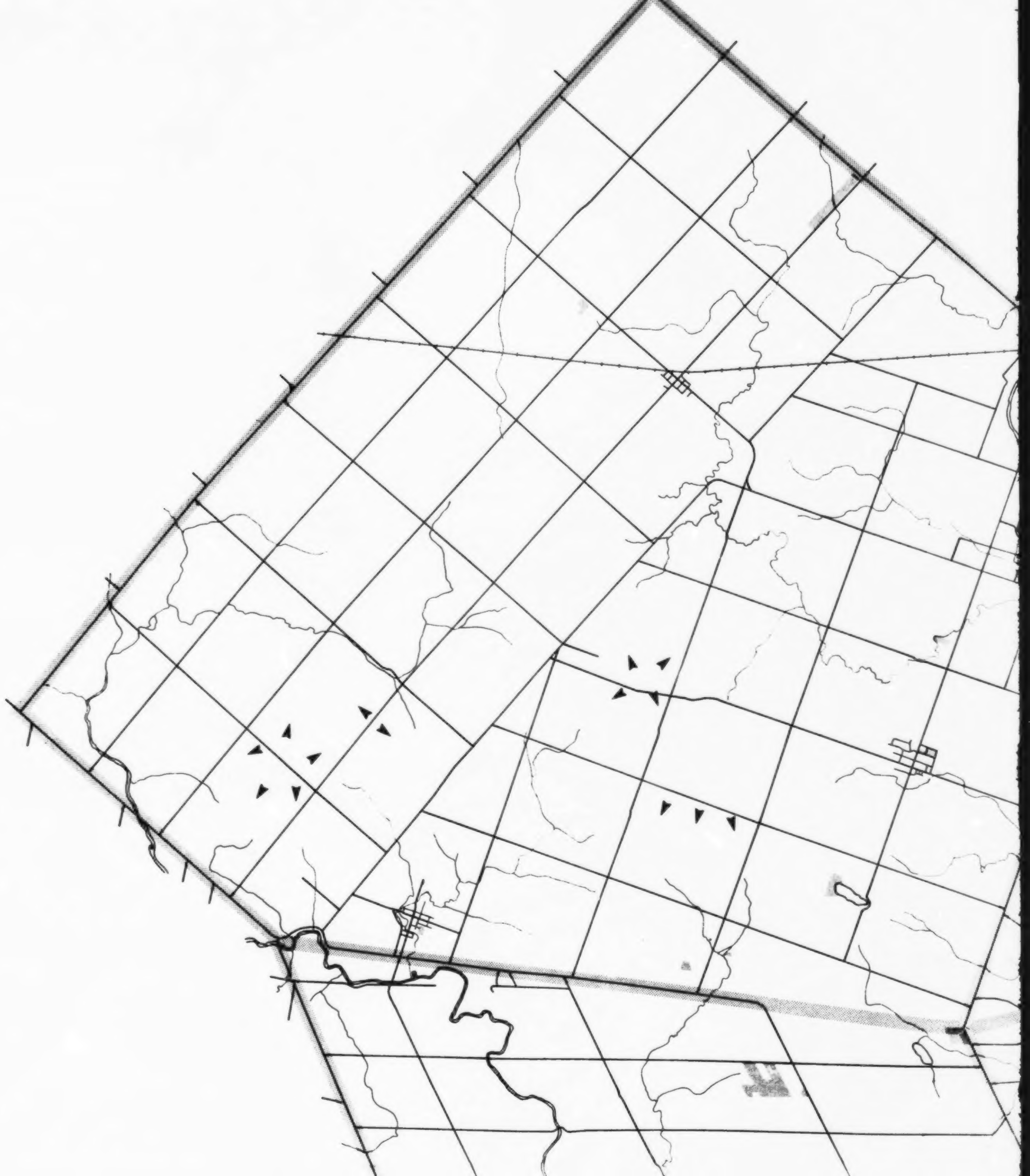
MILES
1 0.5 0 1 2 3
1 0.5 0 1 2 3 4
KILOMETRES

1:100,000


▩ Urban Perspective
☐ Agricultural Perspective
▨ Agricultural, Recreational Perspective
▨ Gravel and Sand, Recreational Perspective
☐ Recreational Perspective
▨ Mixed Agricultural, Forestry, Gravel, and Recreational District


1 0.5 0 1 2 3
1 0.5 0 1 2 3 4
KILOMETRES
1:100,000

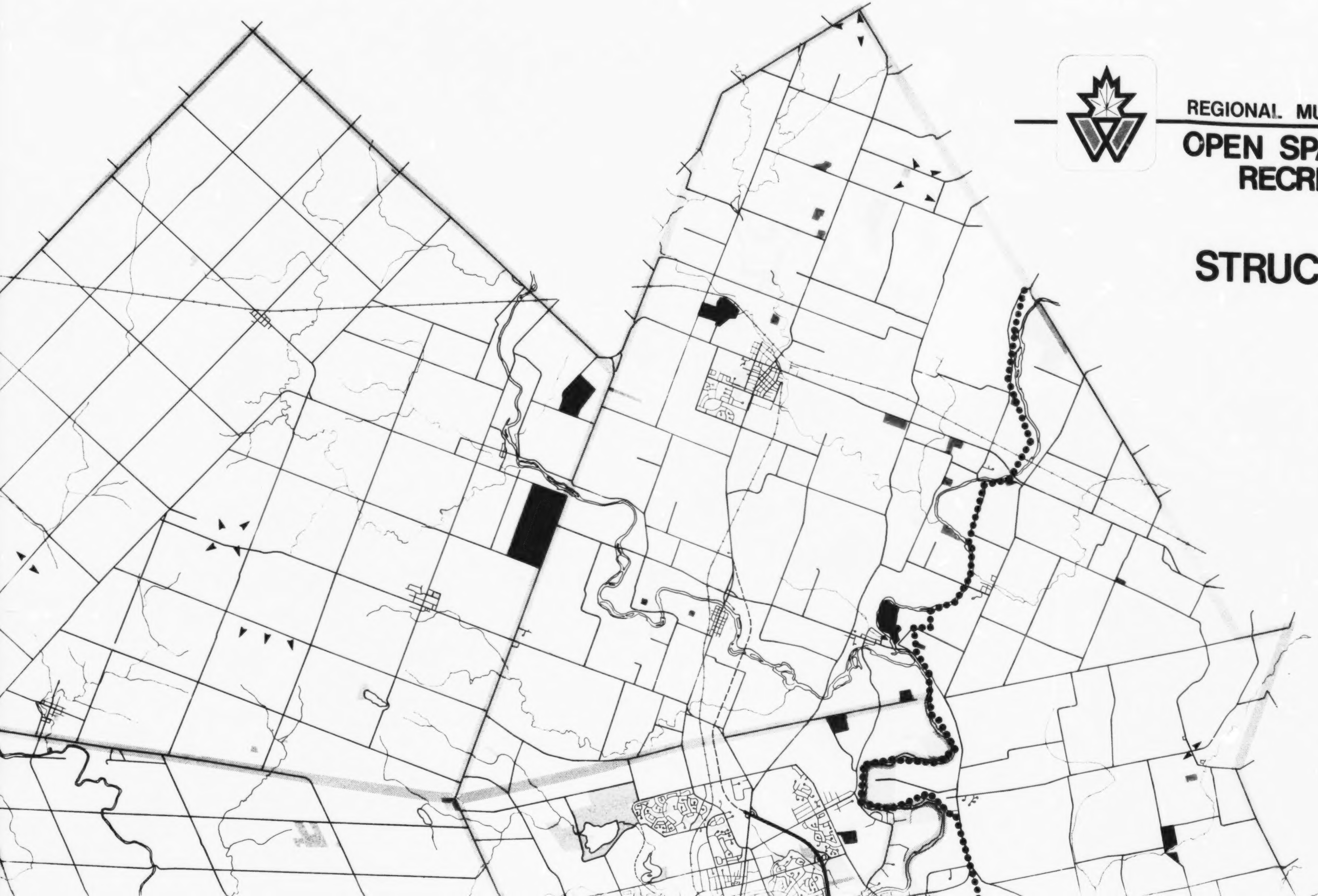


REGIONAL MUNICIPALITY of WATERLOO

OPEN SPACE & OUTDOOR RECREATION STUDY

STRUCTURE PLAN

Map No. 6.1



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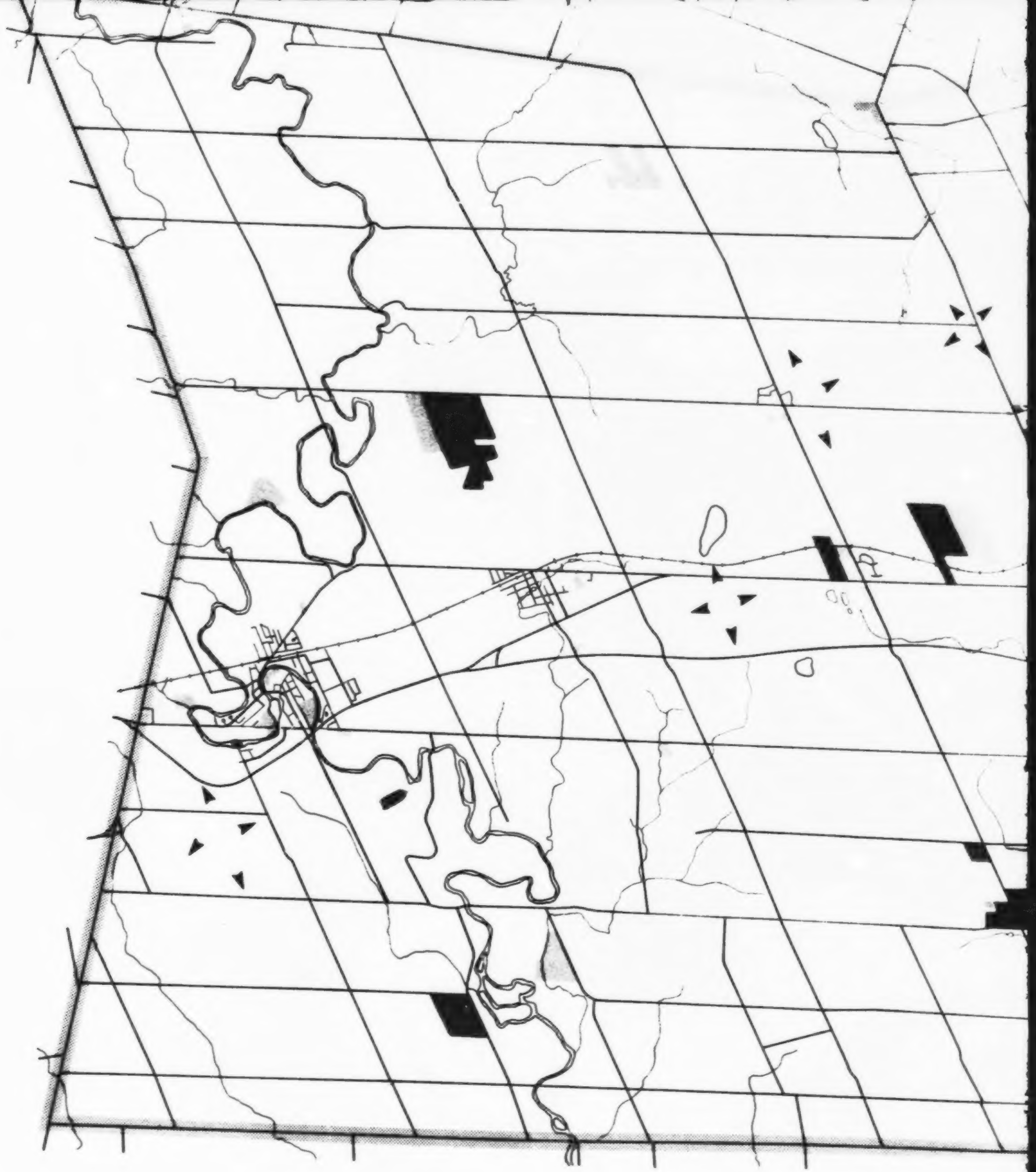
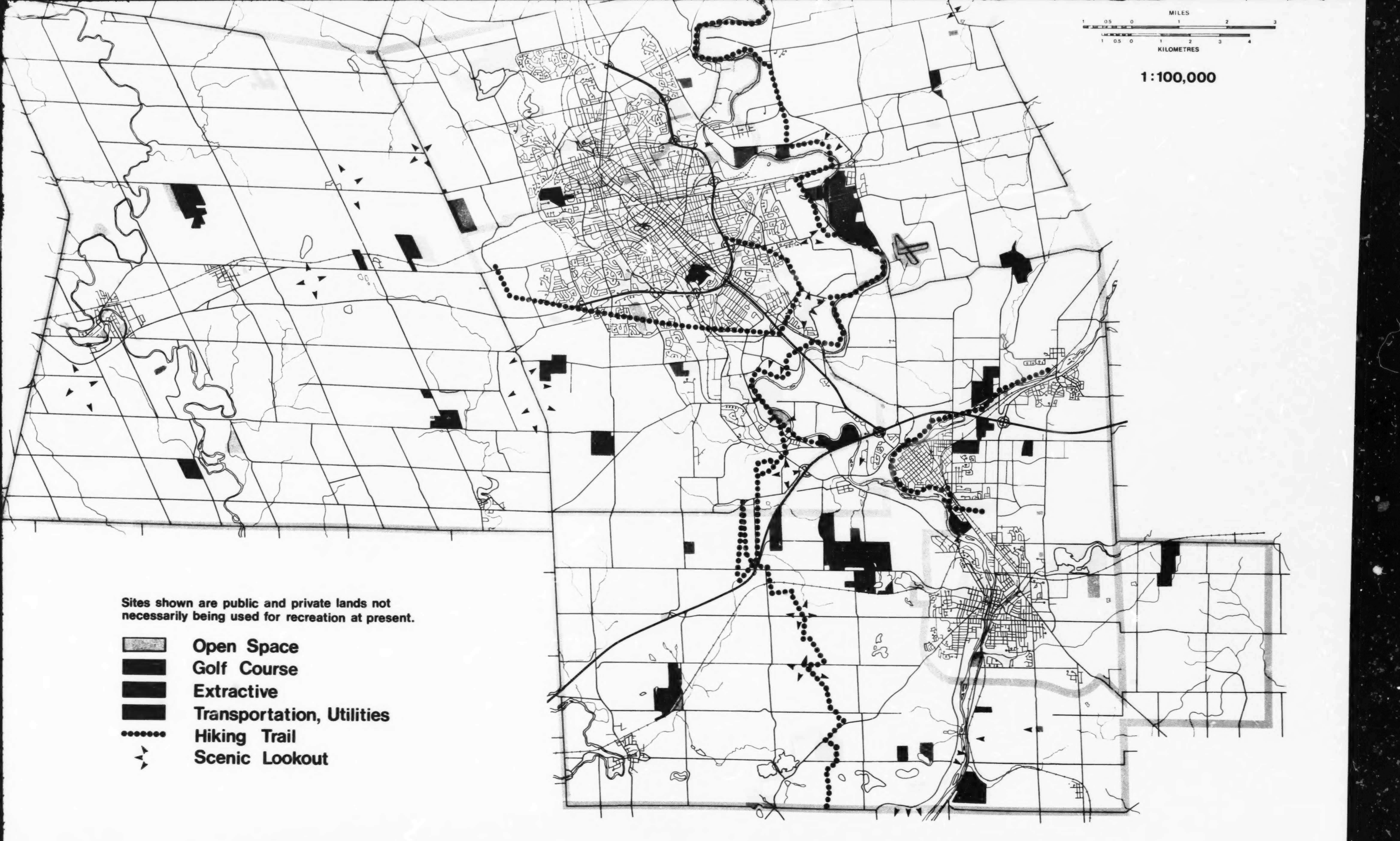
1 0.5 0 1 2 3 4
KILOMETRES

1:100,000



Sites shown are public and private lands not necessarily being used for recreation at present.

▨ Open Space
■ Golf Course
■ Extractive
■ Transportation, Utilities
●●●●●●● Hiking Trail
⋰ Scenic Lookout


MILES
1 0.5 0 1 2 3
1 0.5 0 1 2 3 4
KILOMETRES
1:100,000

Sites shown are public and private lands not necessarily being used for recreation at present.

- ▨ Open Space
- ■ Golf Course
- ■ Extractive
- ■ Transportation, Utilities
- ••••••• Hiking Trail
- ➤ Scenic Lookout

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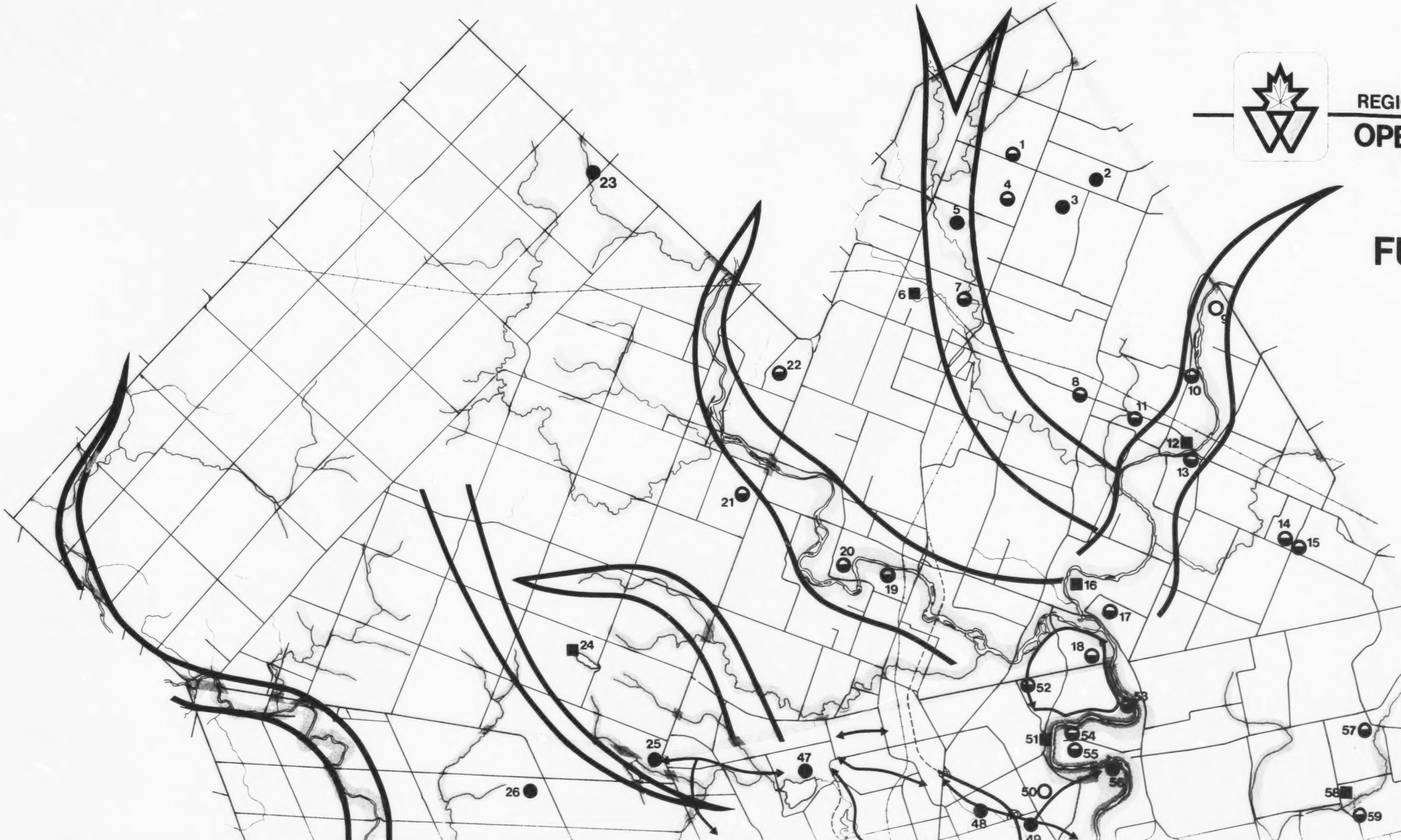
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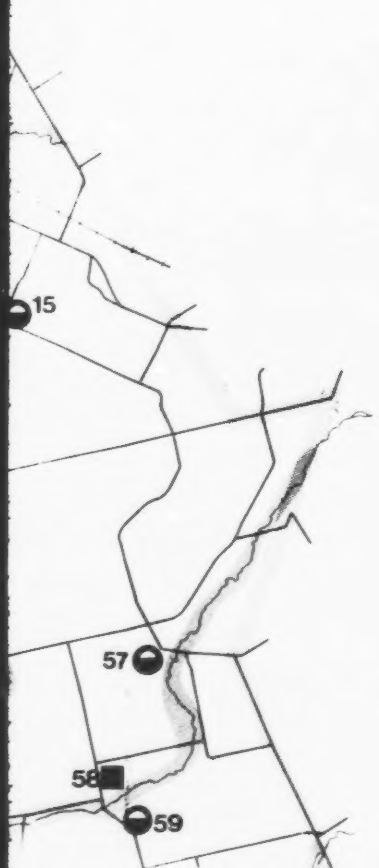
REGIONAL MUNICIPALITY of WATERLOO

OPEN SPACE & OUTDOOR RECREATION STUDY

FUNCTIONAL PLAN

Map No. 6.2



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MILES
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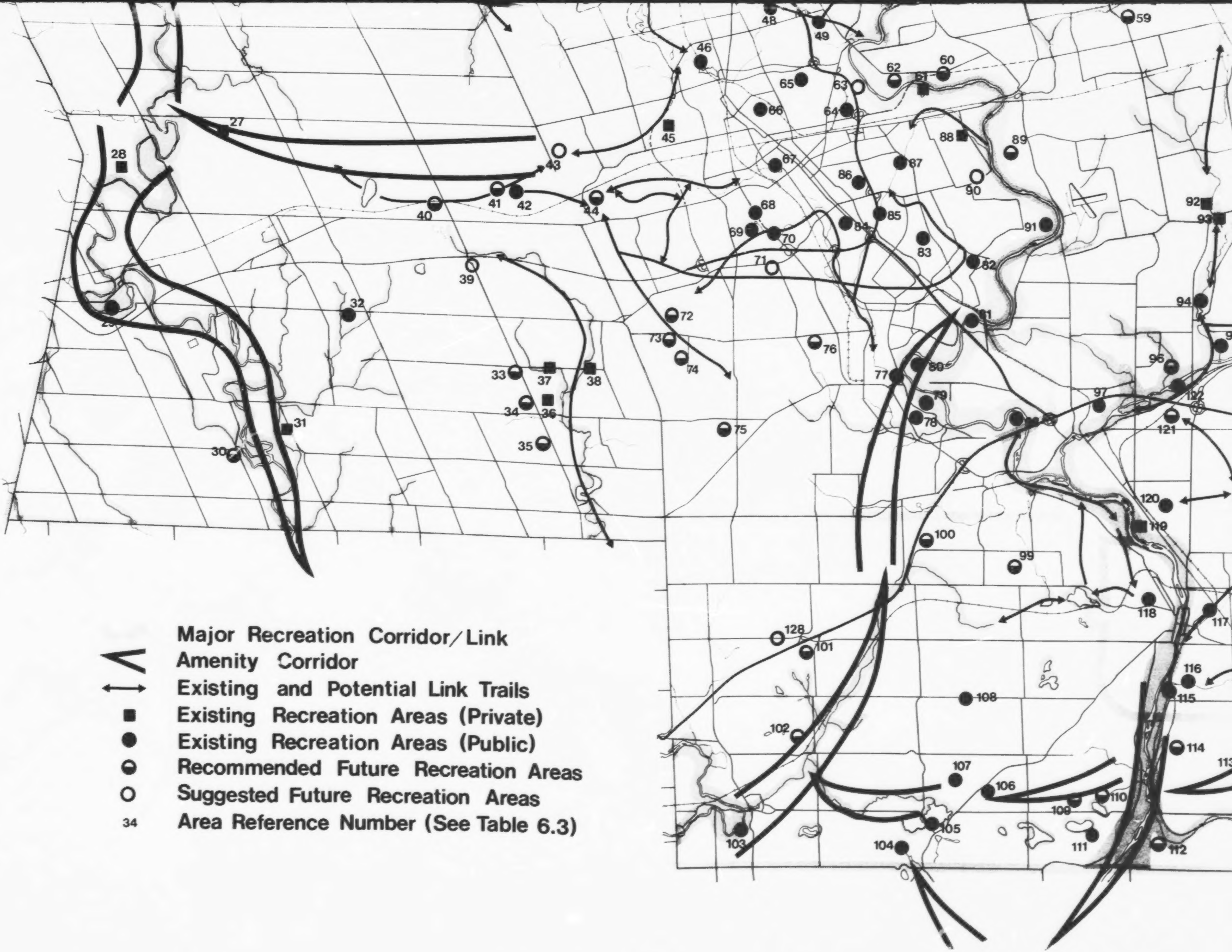
1 0.5 0 1 2 3 4
KILOMETRES

1:100,000


Major Recreation Corridor/Link
Amenity Corridor
⟷ Existing and Potential Link Trails
■ Existing Recreation Areas (Private)
● Existing Recreation Areas (Public)
◒ Recommended Future Recreation Areas
○ Suggested Future Recreation Areas
34 Area Reference Number (See Table 6.3)
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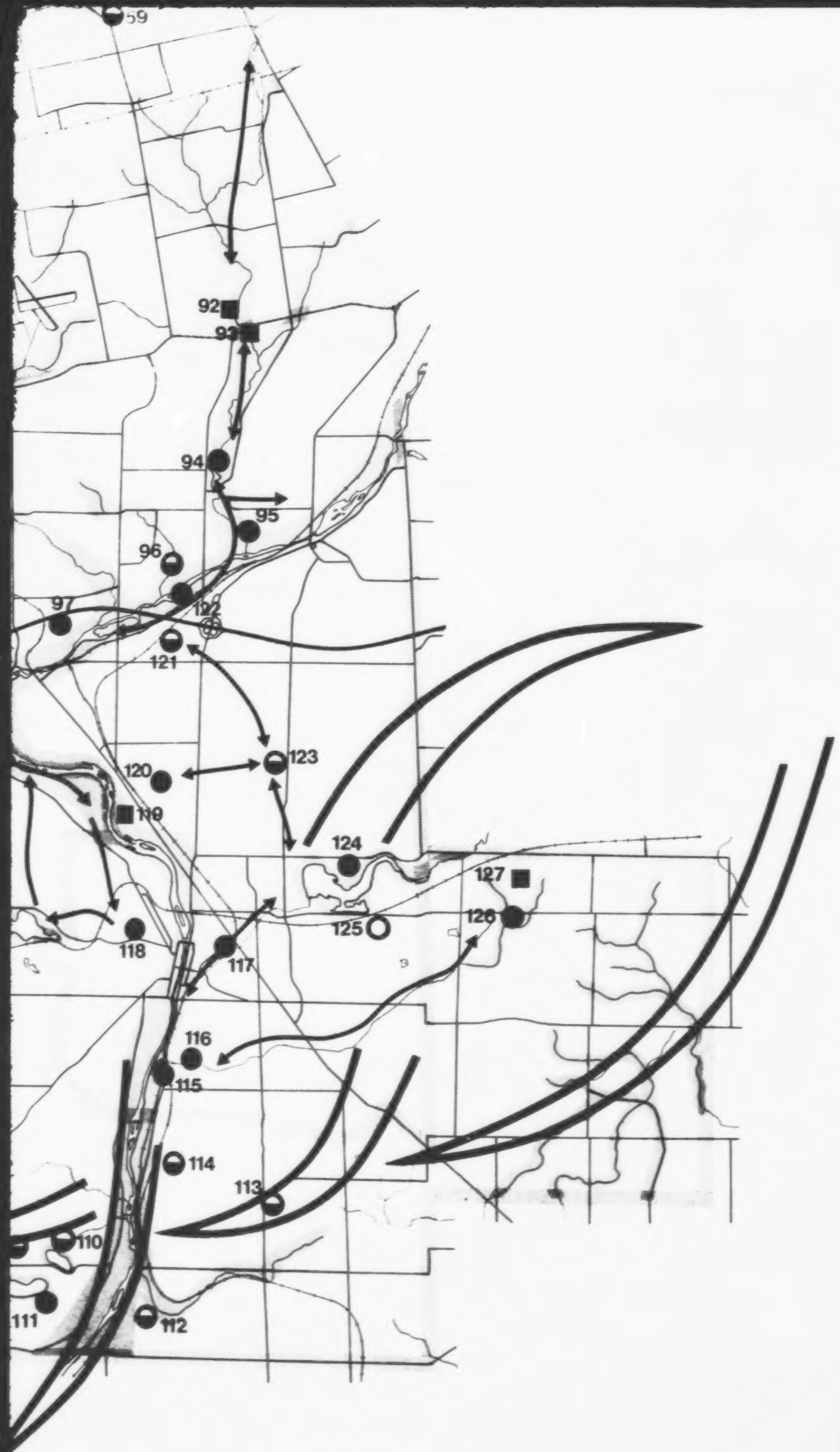
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